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ABSTRACT

Compiled in this report is a mixture of formal and informal discussions of problems related to population education, as presented at the National Conference on Population Education, held November 11-13, 1971. Focus on the secondary schools was chosen because this level presents a workable testing ground for experimenting with alternative ways to broaden the traditional curriculum to include demographic dimensions of human experience. Topics discussed correlate with conference objectives to: (1) examine the meaning of population education and what it seeks to achieve; (2) clarify relationships between population education and the accepted disciplines and other multidisciplinary fields; (3) explore alternative teaching and learning approaches and criteria by which they can be evaluated; (4) identify significant gaps in the availability of teaching materials, training, technical assistance and other needs of teachers and students; (5) review the capacity and readiness of various participating organizations to fill the most important gaps; (6) assess alternative strategies in getting school systems to introduce population education as rapidly as possible; and (7) see what means might be most useful for keeping each other informed of developments in the field. Summary statements indicate a continuing struggle between a broad overarching scheme of population education and the individual components of such a scheme. (BL)

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The proceedings of the national conference on

population education

Population Reference Bureau, Inc.
November 1971

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Judith R. Seltzer
Kathryn Horsley

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Conference Staff

Carl A. Huether
Coordinator

Michael F. Brewer
Chairman and President, P.R.B.

Letitia Atwood

Marcia-Ximena Bravo

Kathryn Horsley

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Each of the three drawings interspersed throughout the Proceedings pages is an expression by a young person of a "population message." Each student artist was a winner in a graphics contest held by the Population Institute Student Project. A Population Poster Packet, including six such colorful pieces of art, is available from the Population Institute, 100 Maryland Ave., N.E., Washington, D. C. 20002.

Introduction

The field of population education has evolved as the significance of population issues in the contemporary world has become more apparent. To cope with and improve life in our complex environment, people must understand the basic forces at work in a constantly changing ecological system. In order to grasp how demographic trends affect this system, one must first understand how they interrelate with the forces of technology, political and economic institutions, and cultural values. Population literacy then entails an understanding of the consequences of population change on this system and of alternative courses of action to be taken at both the personal and societal levels.

Human population phenomena are inherently social phenomena. Population education deals not only with the dynamics of the aggregate, but also with how the individual from the earliest ages affects and is affected by the population of which he is a member. Each person's values, lifestyle and behavior influence population trends including those of family size, marital patterns, contraceptive practices and distribution of social services. In turn, our understanding of these complex population issues is certain to influence changes in the formation of our values and behavior patterns.

Because many of these changes are, in fact, desirable, we must go beyond mere informational instruction to participatory education. Population education should ultimately create the conscious participation of each individual in the formation of population policies for his society.

The National Conference on Population Education, which was held on November 11-13, 1971, was planned by the Population Reference Bureau as a working conference of organizational representatives and individuals actively interested in the development of population education throughout the U.S. school system. It was conceived as a way to lend momentum to population education and to provide a forum for sharing experiences that participants have had with materials, instructional techniques and curricula, and for discussing where priority should be placed in future population education efforts. The Conference focused

primarily on the secondary schools. While it was recognized that much effective education for these age groups occurs outside the classroom, the in-school focus was chosen because the public schools in the United States present a workable testing ground for experimenting with alternative ways to broaden the traditional curriculum so that it includes the demographic dimension of human experience. Initial teaching efforts are directed toward the junior and senior high grades. These young people, just past puberty, have demonstrated a "psychological readiness" in terms of interest in family formation, their own sexuality and other population-related questions. In addition, the junior and senior high school age groups make an obvious group for such information and efforts because they will be the next cohort of decision makers affecting individual and social behavior in population affairs.

The Conference had the following objectives: 1) to examine the meaning of "population education" and what it seeks to achieve; 2) to clarify relationships between population education and the accepted disciplines and other multidisciplinary fields; 3) to explore alternative teaching and learning approaches and criteria by which they can be evaluated; 4) to identify significant gaps in the availability of teaching materials, training, technical assistance and other needs of teachers and students; 5) to review the capacity and readiness of various participating organizations to fill the most important gaps; 6) to assess alternative strategies in getting school systems to introduce population education as rapidly as possible; and 7) to see what means might be most useful for keeping each other informed of developments in this dynamic field.

Participants

The entire rationale for the Conference required bringing together those having substantive expertise or personal experience in population education, as well as representatives of organizations with general interest in the field. An effort was made to include experienced individuals from all levels of the educational hierarchy, as well as representatives from a variety of public education organizations. Toward this end, the approximately 100 participants included:

- ☐ *18 teachers, supervisors and school administrators from 14 districts and 8 states;*
- ☐ *8 representatives of educational organizations, including the National Council for the Social Studies (NCSS), American Association for the Advancement of Science (AAAS), National Science Teachers Association (NSTA) and Biological Sciences Curriculum Study (BSCS);*
- ☐ *25 university representatives from 15 campuses, including several graduate students and one undergraduate;*
- ☐ *29 representatives from 17 nonprofit population and environmental organizations;*
- ☐ *12 representatives of the federal government, including the*

National Science Foundation, the Office of Education, the National Institutes of Health and the Office of Population Affairs.

Since the Conference did not concern itself with resolutions or motions, conclusions and consensus cannot be reported exactly. This volume is a compilation of the presentations and some ensuing discussions with a brief retrospective concluding section. Some of the papers were prepared prior to the Conference and were read by their authors with minor modifications. Other sessions presented here are edited transcripts from tape recordings of the proceedings. All authored material has been reviewed and modified by the respective writers. In addition, general comments made by the participants pursuant to formal presentations have been appended in digested form. The result is therefore a mixture of formal and informal discussion of a series of problems related to population education whose complexity concerns specialists and observers alike.

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plenary sessions

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The Importance, the Urgency and the Opportunity for Population Education

Christian N. Ramsey
President, Institute for the
Study of Health and Society

I am delighted to be here today to take part in this landmark Conference—a Conference explicitly focused on the philosophy and the need for population education. The discussions that will go on here, and the outcome of these discussions, should have important impact not only on the participants in the conference and individuals of our society but on the nation as a whole. Hopefully, the Conference will be a substantive catalyst to all of us to get to work in designing, teaching and learning more about population problems and how they affect the quality of life in the United States.

Recently I talked with Paul Ehrlich of Stanford University. He made a statement which I think has great merit for consideration by us as we begin this Conference. He said:

"In the United States and around the world there clearly has been an almost total failure to prepare people to understand and make decisions relating to the population/environment crisis. The universities, which should be leading the way in education, have been too conservative and compartmentalized. Unfortunately, most human problems do not fall neatly into such academic categories as sociology, history, economics, demography, psychology or biology; and the solutions to these problems require the simultaneous application of the best ideas from many academic disciplines. Our failure to provide a multidisciplinary education explains the optimism of many physical scientists, economists, technologists and others relative to the population and environmental crisis."

He went on to say further:

"Although the educational system below the college level is in some

way less resistant to change, it is similarly inadequate in preparing people for the realities of the problems. In some of the better school systems, however, there are signs that this may be changing—sometimes due to the initiative of the students themselves. Even junior high school students in some areas have demonstrated their concern for environmental deterioration through various activities. Many teachers are beginning to encourage interest in population and environment, with or without administrative support."

Now I think there are two aspects to the problems that the educators must address. The first one is the consideration of the importance of population problems. The second is a candid look at these problems which Ehrlich mentioned of how one goes about teaching students about these problems with the various constraints of our present educational institutions.

The importance of population problems

We have all seen conflicting stories recently in the papers. Some experts take the approach that the explosive growth of population is the most significant terrestrial event of the past million millenia, while others, just as qualified, insist that factors—in some cases beyond our understanding—are bringing our birth rate in the United States down and that we need not be concerned about large numbers of people because we will soon achieve a relatively stable U.S. population without any national policy.

It seems to me that Dudley Duncan, a demographer from the University of Michigan, put the situation in some perspective in a memorandum he sent to me about a year ago.

"In the long run, population growth must come to a halt. We occupy a modest, though exceptionally well-endowed, fraction of a finite planet. For all we know to the contrary, our present population may already be larger than the equilibrium size that can be sustained at our present level of living over the indefinite future.

"There is really only one argument, then, against a policy tending to reduce growth to zero as quickly as it may be feasible to do so. The argument is that it may be less agreeable to *us* (the present tenants of these United States) to attempt to reach this goal than it would be to leave that task to our descendants. Such an argument is unworthy.

"Except under conditions that we would not wish to tolerate for other reasons, some substantial further growth of U.S. population is virtually inevitable. The reason is that our population's history of past growth has left us with an age distribution that has an excess of persons in the reproductive ages, relative to their proportions in a stationary population. There will be a lag of some two-thirds of a century between the time when fertility falls to a replacement level and the time when growth actually stops."

Dr. Duncan suggested one other approach which I have found to be quite useful in looking at the importance of population problems.

"There is hardly any social problem confronting this nation whose

solution would be easier if our population were larger. There are few, if any, sectors of the economy whose efficiency would be greater if numbers were larger than they now are. . . .

"Perhaps it is best to think of population growth as an *intensifier* of social problems. Automobiles, not people as such, cause air pollution. But for a given ratio of cars to people, the more people, the more pollution. We shall have to do more than limit population size to solve the pollution problem, but limiting population size would be a distinct help. A parallel analysis holds for other problems."

The relationships of population to environment, health, government, the economy—all are areas in which the Commission on which I serve is presently doing extensive research. The preliminary report findings tend to support Dr. Duncan's statement that population is an intensifier of many of the other problems we face.

The importance and the "how" of population education

Rufus Miles stated the need for population education when he said:

"Solution of such a profound, pervasive and long-range problem will require . . . an understanding on the part of the vast majority of members of society of the nature, implications and social and personal consequences of population problems and of alternative courses of action—both social and personal action."

The task, then, is how to deal with three aspects of need which Mr. Miles points out:

☐ A profound problem—The problem is deeply complicated, and it is increasingly difficult for individuals to get a handle on. Education must aid in seeking major concepts and in providing a frame of reference for individuals to use as they accumulate data and information on the problem.

☐ A pervasive problem—As has been previously stated, the problems in population affect so many different aspects of our lives that it is difficult to understand the relationships. Research and education are needed to clarify the relationships between population and the environment, the economy and the overall quality of life.

☐ A long-range problem—and according to Dr. Duncan:

"The population problem, per se, is thus a long-run problem, but it is no less urgent on that account, for the solution must likewise be a long-run solution. Postponement of the day of reckoning will not render the reckoning less painful—quite the contrary. The very fact that the solution will be a long time in coming attests to the need to get on with it at once."

Changing population growth rates to meet a purpose of enhancing our quality of life is probably the longest-range problem with which we have yet had to cope. Man hasn't been psychologically prepared to confront a problem which will require generations to solve.

This will really pose a challenge to educators. Educating our people for long-run solutions is going to be difficult. Can national (nonpersonal) factors influence family size? The traditional answer is no, yet it is apparent that abstract national ideology can and has greatly influenced people on other issues. If we can translate an ideology regarding population into behavioral contingencies that affect individuals at the community and family level, there is the possibility a national imperative on population limitation may be instrumental in family size determination and public policy decisions.

In some ways, the seeming problems of population education may be blessings. The fact that the solutions are long-range gives us some time to experiment, but we must begin that experimentation. The fact that the problems are pervasive gives us many opportunities to teach about population in social sciences, economics, mathematics and biology, and thus may not require an entire restructuring of the curriculum.

Broader implications of the need and opportunity

Aside from population pressures on the biological and physical limits of our environment, current trends have set into motion frustrations and hostilities that existing institutions cannot contain. These destructive forces will originate in the immense disparities in individual welfare between the developed and less developed world. Economic and material advances in less developed countries are dissipated over rapidly growing national populations. A widening gap in per capita welfare between developed and underdeveloped nations can be stopped only by reducing fertility. This is needed in both developed and less developed countries.

To do this without coercion requires education—of *all* sorts, in school and out, infused, multidisciplinary and so forth. At the present time we do not have the ideas, materials, techniques to do the job of changing motivations. Their "technology" must be developed rapidly. It will require money, much energy and a capacity to organize, experiment, evaluate and redesign, on a scale comparable in size and complexity to developing a space technology. This can be done only with full U.S. commitment and participation. Without a U.S. population education program (and a vigorous one), there will not be a "population education technology" which can be made available to the less developed countries. The need for U.S. population education exists *quite aside from* benefits to be derived from slower growth of U.S. population.

Panel Discussants

Prof. Jack Blackburn: As I travel throughout the country, visiting various schools and classrooms, I meet a great number of students and teachers. I see adolescents who don't know how to cope with the new growth they have, and who find it difficult to sit in the seats which have been provided for them. I see distraught teachers who are overwhelmed by the mere numbers of students, and frustrated principals who want easy solutions to overcrowded situations. I see very little instruction and help which

would enable young people to form deep and meaningful human relationships. I see many young unmarried pregnant girls who are being told by schools, "If you are going to have a baby, you don't belong here as a student." I see dull current events courses and activities which try to inform students about world problems and rarely allude to population awareness and population problems. These are very depressing problems which hinge upon topics which we will be discussing in the next few days. These educational realities represent a vast wasteland of human resources, human concern, and materials which we have at hand in educational settings.

The whole concept of population is a contemporary social reality. For present day and future students to have the quality of life which they deserve, we must deal with population as a social reality in our educational programs. The curriculum is the vehicle which is used to implement problem solving activities related to social realities. It must deal not only with perceptions of social realities, but also with the students' and teachers' perceptions of needed social changes.

The curriculum should also be concerned with how we can help people to care more about their world. This is one of the major social problems related to population. The curriculum must go beyond providing information to students in the cognitive areas. It must help teachers and students to interact and to integrate into their lives the actual plan presented by the curriculum. The curriculum should stimulate feelings, emotions, and attitudes which reflect the social realities. Curriculum should be much more related to affective education than it is presently.

Psychologists use the term "advanced organizer." Much of what is going on in the field of population education today represents this advanced organizer concept. We need to give concerted effort to developing advanced organizers in curricula and materials which will serve as models for students and teachers to employ according to the advanced organizer's appropriateness to the teacher-learning situation.

We have curriculum development in population on the local level. Some of it is filled with stimulating concepts and accurate information. Some curricula contain inaccurate information which leads students to misconceptions. Curriculum development and material development must exist on different levels. There is a strong need for materials and curricula to be developed at the national level with consultation at the local level to facilitate the application of curriculum to a number of situations.

In addition, teachers must be effectively organized and instructed to use the curriculum material. I would judge that most of our current curriculum projects with national scope have proceeded to develop materials and then have found it necessary to borrow money from the government in order to train teachers to implement the new curriculum. With the population education program beginning on the ground floor, this process can be done the way it ought to be done—which is to develop curriculum and provide in-service education for teachers simultaneously.

The groups gathered here today should talk to national educational

groups which have training programs and supervision in curriculum development. At all times, we must remain flexible in developing approaches to population education. Because population is a social reality, we must try to introduce population related experiences into the school program for young people and draw upon past experiences in curriculum change to attain the greatest possible impact.

Dr. Nancy F. Russo: The importance and the urgency for population education cannot be overstressed. The young people of today not only have a massive reproductive potential, due to their large numbers, but they are also "reproductively oriented." The median age of marriage is around 21 years of age for females and the young men they marry are but 2 years older. By contrast, consider the Soviet Union or Japan, where the average age of marriage is 26 for women and 29 for men. The lower age of marriage in the U.S. persists despite the recent recession and despite the "marriage squeeze" which reflects the relative shortage of marriageable males available to the rapidly maturing baby-boom females.

There have been recent reports in the press suggesting that the lifestyles of the young are changing, that perhaps young persons are seeking alternatives to marriage and that perhaps women's liberation is affecting the attitudes and behavior of the young. However, Yvonne Brackbill and I have compiled the literature and have obtained data ourselves on the attitudes and behavior of thousands of young people, and I can only term these newspaper reports as over optimistic.

Most young persons, male and female, hold traditional pronatalist attitudes—they intend to marry and have *at least* 2 (but more like 3) children. Being single, being married and child-free, or having an only child are viewed as undesirable states, to be avoided. These traditional attitudes of the young are a reflection of the pronatalist social and cultural milieu in the United States. Population education provides a potential counterforce to the traditional pronatalist structure, but I submit that unless it is broadly defined and action-oriented, it will not have a major impact on the fertility of its students.

The conditions that will serve to translate population concerns into behavior change have not been adequately investigated. Several studies have shown that students may be concerned with overpopulation, and at the same time hold relatively high fertility goals. Reasons given for family size limitation are egocentric—e.g., economic circumstances, desire for travel, personal freedom—whether or not the person is concerned about population. Certainly population knowledge is important. For example, many middle class students see overpopulation as someone else's problem, usually the poor or underprivileged, so it is no wonder they often fail to make the connection between "population problems" and their own childbearing.

Population education, to be effective however, must do more than intellectually present statistics. It also must widen the options of our young people, especially our young females, so that there is a real choice open to them besides marriage and repeated childbearing. Study after

study shows that young persons still hold the traditional stereotype about the woman's place—and it is a pronatalist place. Take for example the finding from a national sample of over 180,000 incoming college freshmen in 1970. Almost one-half of these students agreed that a married woman's activities are best confined to home and family. Almost one-half of the males in this sample would not agree that a woman should receive equal pay for equal work. These expectations are a product of early socialization and the schools have contributed to that socialization. One cannot expect population education to give the students the ability to select their fertility goals by rational means when the social structure so limits the options psychologically available to our youth, especially to our young women.

Women have been (and still are) defined in terms of their childbearing and mothering functions, and the female is programmed from birth to seek to fulfill these functions. She will continue to do so despite intellectual encouragement to the contrary as long as these are the only rewarding choices open to her.

Under these conditions, the task of producing an informed, responsible public will not only be difficult—it will be impossible. Without individual freedom, the concept of choice is meaningless, and in this pronatalist culture, one is not free to choose not to marry or not to have children, without penalty.

Knowing this, what are we going to do? It would be wise if population experts who are interested in the process of educating students would take a lesson from the American Cancer Society. The American Cancer Society educates the public to the hazards of smoking. If people were smoking because they thought it would make them healthy, smoking patterns would be altered tremendously. However people smoke for other reasons, so that despite the American Cancer Society's efforts, smokers continue to damage both their health and the health of the people who have to stay in the same room with them. Their experience tells me that to be effective population education must be broadly based. It must not only present students with population facts, but it must sensitize them to the forces and motivations which are compelling individuals to bear the children which cause population growth in the first place. Achieving awareness of the forces which are affecting one's personal goals and behavior is the first step to overcoming those forces and becoming a freer person. Population education, broadly defined, can provide the opportunity for its students to that necessary first step.

Prof. Charles Nam: Many demographers and other social scientists concerned with population matters might sense something familiar about the theme of this session. About two decades ago, we were holding similar meetings on the importance, the urgency and the opportunity for *economic aid* as a means of achieving population control. It was easy to justify such a program on broad economic and esthetic grounds and we began to implement it. After some time, we recognized that this approach was not achieving its goal. Population

growth was not reduced and, while we continued to support the program, we lost interest in it.

About a decade ago, we held meetings like this one to discuss the importance, the urgency and the opportunity for *family planning* as a means of population control. It seemed extremely logical to do so. Economic aid was not doing the job. A large segment of the population was interested in control of family size. Furthermore, contraceptive technology had advanced to the point where a great variety of family planning methods were available to satisfy almost everyone's taste. Years have now passed and, although the approach seems valid, we have not achieved the proposed goal. Many are skeptical of the accomplishments, and even staunch advocates of the family planning movement are agreeing that it has not been quite as successful in reducing population growth in many parts of the world as they had hoped.

Today we are asking about the importance, the urgency and the opportunity for *population education* as a means of achieving population goals. This approach, too, has a basis for support because it is logical, it is intellectually satisfying, it works through an existing social institution, and the need for achieving further population control still seems great. We might well remark that we have nothing to lose. While these arguments may be used to convince some persons that population is worth investing vast resources in, others of us might want a more substantial basis for justifying this commitment. That is, what would lead us to be more optimistic about this approach than others that we have taken before?

Let me mention some reasons why I think population education does indeed have some promise as a means of population control, and additionally what we must do to ensure that it has a good chance of succeeding. *First,* in the nature of a theoretical imperative, we can draw heavily from the social sciences on socialization theory and research to show that values and attitudes about population as well as many other forms of behavior are adopted at a very early age and subsequently do not change substantially. Those of you who are acquainted with the literature on socialization, particularly child socialization, are familiar with many studies which demonstrate that fact.

Several years ago a colleague and I made a study of family size desires by children in the sixth, ninth and twelfth grades. We found that strong preferences did exist even at the youngest ages. The aim of the family planning movement has been to socialize adults who have not previously been socialized as children or youth about population matters. Population education, on the other hand, seeks to socialize the young in population awareness, with the further assumption that this socialization will be reinforced in adulthood. There is thus some theoretical justification in the population education approach which seems to make it possibly more successful than other approaches.

Second, as Kingsley Davis pointed out, every country which has succeeded in controlling population growth has done so by employing every means possible. This has been true even in countries where we

associate population control with one principal means, such as abortion in Japan or heavy emigration in Ireland. Davis' argument would lead us to adopt population education not at the expense of other approaches, but in addition to other approaches. History indicates it is the cumulative effort which in the past provided a basis for success. So here is a theoretical basis for not throwing out all of our past efforts and saying let us try this new one, but perhaps coupling population education with other approaches we already have used and those which may yet be developed.

Third, the success of population education will depend in large degree on the particular way population education is introduced into the school curricula. In determining how effective an approach is, we must be prepared to develop and test alternative teaching techniques, keeping in mind the grade levels at which instruction should first be introduced, curriculum content, how it should be related to other components of the education process and so forth. Experimentation should be built into the approaches used.

Fourth, we must not let our blind faith in the approach lead us to assume that it is bound to be successful. Part of the program on population education should be a continual evaluation of the impact that the approach has—first in the short run, later in the long run. There should be some convincing evidence at an early stage of development that the program really works in terms of affecting knowledge, attitudes and behavior in the population sphere.

Finally, we should maintain objectivity in dealing with the kind of attitude and behavior change that can be brought about through this approach. It so happens that, at this stage in the history of demographic conditions, we see a need among many people for a substantial slowdown of the rate of population growth. At some later point in time, we may be concerned about increasing population growth. Moreover, global population size is not the only population phenomenon that will be critical in the future. Even if we were able to achieve zero population growth tomorrow, that would not end population problems. Instead of worrying about size as a national problem, we would be concerned about matters of distribution and redistribution; so there are aspects other than size alone that have become important to us. We should be flexible in how we define the domain of population education, realizing that there are many different kinds of population problems to which we must educate children as well as adults.

Population education should produce the capability to enable individuals to adopt more rational, more defensible positions about demographic behavior, positions that are based not on emotion or expediency but on logic and full knowledge of the causes and consequences of population change. In this way, people's behavior can reflect this knowledge and awareness. The chief merit of the educational approach to population regulation is that it relies on maximizing reason as a guide to population-related behavior. By the same token, population education cannot be validated on the ground that it inherently makes good sense.

Discussion Points

☐ The development of a population education technology by the United States has been interpreted as an obligation to the rest of the world. This task should not be seen as the white man's burden, but as a domestic problem. We should not be in the business of merely exporting technology; we can indeed learn and should seek guidance from other cultures and nations. A few nations have actually moved far ahead of the United States in their population education efforts.

☐ No definitive proof is available that population education will eventually lead to a reduction in the rate of population growth in our society. Although this may be a desired consequence, population phenomena are a matter of great interest and concern in terms of social realities, and people should understand these phenomena regardless of the behavioral consequences.

☐ By confining the population education effort to the formal school system, we may be impeding the overall impact of the endeavor. The recent Congressional debates and Population Commission hearings will perhaps emphasize the need for a broad population education program.

The New York Times will publish a population education supplement in April 1972 entitled, "Population Crisis—the U.S. and the World." The supplement is, of course, useful material for high school students, but was primarily written for the general public. By preparing population education materials for mass consumption and not solely for a particular segment of society, the impact of the population education movement should be heightened.

☐ *The New York Times* population education supplement has already generated some discussion concerning distribution of population materials to the poor. The essence of this question involves the effectiveness of general population materials for a broad audience. Are materials written specifically for the middle class useful materials for circulation to the poor? Or do we need to prepare a variety of materials whose focus relates to specific conditions and needs of particular segments of society?

☐ Frequently, efforts to communicate population control information and other population-related subjects to the poor and population programs themselves have been regarded as genocide—especially by the black community. However, information on population affairs is relevant to all sectors of society, and the most effective population education program should move in a number of directions simultaneously, developing a variety of materials useful at various levels.

☐ Is the present structure of curriculum really the place to do the educating? The real education is not going on in the classroom today, but rather in rap sessions, with counselors, in the halls and lunchrooms. And yet the Establishment continues to support what may be an ineffective means of education.

☐ The entire population education process may be likened to a chain where each of the links must be present in order to have the chain of events involving awareness, sensitivity, motivation and technical sophis-

tication directed toward some desirable, outlined ultimate behavior. Perhaps a division of labor should be established to fully develop each of those vehicles which will contribute to the entire process.

☐ Due to the critical time element, we must move ahead with population education in a number of areas with a number of approaches simultaneously. We simply do not have time to experiment with one approach at a time.

What is the Meaning and Purpose of Population Education, and How Does It Relate to Society's Pressing Issues? Differing Educational Approaches for Inner-City, Suburban and Rural Schools: How Important are the Differences?

Lawrence A. Davis
President, Arkansas Agricultural,
Mechanical, and Normal College

Man still has the option to determine to a large extent his social and natural environment. The effects on the environment of population growth, industrialization and urbanization are evidence of our reluctance to exercise this opportunity of choosing our own regulatory mechanisms.

If coercive measures are to be avoided in alleviating the pressures of population growth, individual citizens must be sensitive to population problems and informed about how their behavior can either aggravate or help solve them. In short, a literacy in population matters is essential to a voluntaristic solution to this pressing set of problems. While the needed effort is in no sense limited to established educational institutions, the school system of the United States is where the initial and probably major effort must be made. It reaches the largest number of young citizens by far of any public institution, and is the only one capable of handling, in a responsible manner, the complexities of the information and viewpoints associated with population change and its many variables.

At the outset, it is important to understand what "population education" means. We hear the phrases "population awareness," "population understanding" or "population literacy" with various associated connotations. All of these should result from an adequate program of popu-

lation education—a program in which the student obtains full knowledge of the consequences of his actions in the areas of family formation and public policy. A program of population education cannot be narrowly defined, particularly because it cuts across so many educational disciplines. In the study of population dynamics, its causes and consequences, information and frameworks from a number of disciplines are required—obviously from demography and biology, but so too from economics, sociology, psychology, history and health. So many social-cultural variables are at work in human population changes that a program in population education is incomplete without touching on the many subtle and indirectly related variables such as women's work opportunities, income distribution, health care delivery, leisure time, etc.

Actually, all these elements of a complete representation of population education can be brought together in a meaningful and stimulating fashion, by means of a problem-oriented curriculum by working through this kind of curriculum, emphasizing interrelationships among disciplines as well as phenomena and thereby affecting a reform in the fractured structure of traditional education. In addition, this kind of problem-centered curriculum prompts students to question and argue, because they are dealing with issues which impinge on their own experience. This would not be likely, if we narrowly relegated population education to strict demographic analysis or even to biological studies which too easily can ignore the uniqueness of man's social and economic institutions.

Returning to the task of definitions and goals, population education may be defined simply as educational programs aimed at children, adolescents and young adults that will foster an understanding and action-guiding perception of the causes and consequences of human population characteristics and changes.

The more important question is what we hope to accomplish through such a program. Most of us have read papers by the population education experts participating at this conference, proposing well-stated but varying goals and objectives. The hard question remains: Are we in the business of behavioral change? Is our primary goal that of changing the reproductive behavior of man? Certainly, we can agree on the urgency of such change—but can we agree on such change as the ultimate goal of an educational program? Assuming the role and perspective of an educator, each of us must search for this answer.

Before concluding one way or the other, however, consider the distinction between a *goal* and an *approach* of a population education program. Does an explicit goal of changing behavior necessarily imply an approach of deliberate persuasion? Or does an approach of honest inquiry into all aspects of and viewpoints about population growth necessarily mean indifferent student response?

Clearly, a particular goal does not preclude alternative approaches to reach it. One approach may be less efficient or more time-consuming than another, but in a situation where we seek to avoid doing violence either to the integrity of the educational process or to the effort to slow population growth, we may wish to compromise efficiency.

Keeping in mind this distinction between a goal and approach, one might propose that the goal is changing reproductive behavior without classroom propaganda. Could we not approach the same goal by exposing students to contrary ideas about population and using methods of value inquiry which allow students to form their own conclusions?

All of us involved in population education must be straightforward in any statement of goals. If we desire to change reproductive behavior through population education, it must be stated openly. Other vague statements about "increasing awareness for responsible decision making" will only create questions and suspicions of the true intent. To avoid such problems and particularly the controversy over propaganda in the classroom, it would be wise always to include a statement of approach whenever a statement of goals is made. One should never appear without the other.

When we move from the goals to the objectives of a population education program, we must cope with the numerous and extreme complexities in the subject matter itself and also in the ways of teaching the subject so that it becomes real to all students, whether they come from rural, suburban or inner-city environments.

What are appropriate objectives in the process of gaining population awareness or understanding? Sloan Wayland has put forward "goals" which might be discussed here as program objectives, since they deal with the more immediate steps of gaining information and appreciation of certain relationships (they are not, however, specific enough to be considered behavioral objectives). Dr. Wayland states, "On the one hand, the program should develop an appreciation by the individual of the consequences for his family and society of his own actions and attitudes; and on the other hand it should develop an appreciation of the consequences for the individual of the population changes that are occurring in his community and nation." [1] The problem in meeting these objectives is this: Perceptions of how population changes will affect individuals vary drastically depending on the social and physical environment the individual is accustomed to. Individuals perceive different self-roles depending upon their position in the social and environmental context.[2] The population "problem" is seen differently by different groups. And this is particularly true of racial minorities here in the United States. The population problems in a ghetto community are perceived more often as a result of racist social customs and closed economic class structures than as a result of "too many people."

M. Sylvester King is principal of an intermediate school in Harlem. He lives in his community and brings a brilliant quality of humaneness to his surroundings. Recently, he startled a group of scientists, teachers and administrators with the statement, "You'd better thank God for the ghettos. . . . They will give you permission to do the right thing in the

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[1] Wayland, Sloan. "Issues and Problems in Introducing Population Education," p. 10. Unpublished.

[2] Roth, Robert E. "Conceptual Schemata in Environmental Management Education," in *Processes for a Quality Environment*, p. 27.

suburbs."[3] By now, we know from education in city ghettos that the students have a capacity for "crap detection." This is a borrowed phrase from *Teaching as a Subversive Activity,* and a very appropriate one to use in this discussion. In a population education program, the overall context is often one of *survival* or *quality of life.* Frankly, the issues of survival for a black inner-city youth are a far cry from what they are for a suburb-raised child—and the ghetto youth has learned to detect this difference.

As another community educator in Baltimore has pointed out with special reference to a population education program, "If I want to do something as an inner-city kid to alter the problems which affect me directly, should you remind me that population is the answer? . . . We must pursue the 'quality of life' with an understanding that youngsters are aware of these things. . . . It will be imperative then to make population fit into the picture as only one philosophy and not as a separate entity."

So too do we face particular challenges in creating population awareness among students in rural areas. In making the issues real to their immediate experience, we can hardly speak about the problems of density thresholds, disappearing open space, polluted air and water. The children may actually live in areas where migration to the cities has left them in virtually dying communities.

In suburban schools where middle- and upper-class students have rarely been threatened by deprivation and have always been able to travel to where there was recreation space, where "much is already being done" to fight pollution, and where most people really are not having "big" families, what is the most effective educational approach?

The entire question which we are dealing with here is one of value differences. We can make a student aware but if the values gained from his lifestyle and institutions make it impossible to accept population as a problem, how can we reach him? It is extremely difficult to stretch the minds of most youth to imagine future environmental and social states as repercussions of today's policy and behavior. It is still more difficult to stretch the time horizon of youth whose mental and physical energies are absorbed in surviving from day to day. I would like to present a challenge particularly to those of you participating in the workshop dealing with "The Time Horizon Problem" to devote special emphasis to differing educational approaches for inner-city, suburban and rural schools.

The complexities of the population education challenge can work to an advantage in our efforts to diffuse population issues into the curriculum. Linkages with such issues as resources and the environment, the economy, public service delivery systems (health, transportation, housing), quality of government, rural-urban migration, opportunities for women, the need for sex education, all could prove advantageous both intellectually as well as practically. Where these societal issues are

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[3] Samples, Robert E. "Toward the Intrinsic: A Plea for the Next Step in Curriculum," in *The American Biology Teacher,* March 1970.

already focused upon in the curriculum, population variables have automatic points of infusion and if teachers and administrators can see the role population variables play in multiplying and exacerbating these other problems, it is likely that these population variables will receive more of an in-depth focus. The compelling intellectual reason for such linkages is simply that we could give a more complete and responsible picture of just how population changes do affect each of these other issues, and vice versa. From the *Interim Report of the Commission on Population Growth and the American Future,* we hear: "What are commonly referred to as population problems can be viewed more profitably as environmental, economic, political and social problems that are aggravated by population growth and density." If we agree with this interpretation, we clearly have natural links presently existing in many school systems with environmental and economic education, sex education, as well as special courses in "modern problems" or "contemporary issues."

Panel Discussants

Mrs. Caroline Cochran: In response to Dr. Davis' paper, I agree heartily that education about population is essential, that we need literacy in population matters, that it does cut across many educational disciplines, which gives us the advantage in our effort to diffuse population education into the curriculum.

Despite the universality of our population problem, the point is well taken that it is perceived differently by many groups in our pluralistic society. Varying lifestyles, values and opportunities are bound to affect attitudes towards this totally new phenomenon in the history of man. I hope this Conference will examine in depth two related questions: Should we have different materials for these different groups? And if so, why?

Population educators must be alert to the accusations of having "propaganda" in the classroom. Education, not indoctrination, can be achieved by presenting the varying aspects, the conflicting points of view of our population situation, and by allowing the student to form his own conclusions. It is a hard job to personalize the enormity of the population situation; somehow we must use language which is relevant to today. (In talks I always refer to 1999 instead of the year 2000; it seems much closer.)

Population education obviously is much more than a question of influencing reproduction habits of young people. Is the hang-up in population education due to the educational system itself? Or is it due to the subject matter, or both?

Dr. Davis says, "Population variables have automatic points of infusion, and if teachers and administrators can see the role that population variables play. . . ." The phrase, "*if* they can see the role. . . ." pinpoints a major problem in population education. Here we have an example of the "haves" and the "have nots." We are the "haves;" we are turned on to the population problem. But what about the "have nots," the teachers and administrators who have, for many understandable reasons,

not become involved in population. This Conference must have a two-pronged mission—and that makes everyone of us missionaries. As such we must learn how to serve the "haves," to help those teachers and students who are already concerned. But our second mission is that we must learn how to serve the "have nots," those who do not understand the population issues. And let's not kid ourselves because this latter group that we are talking about comprises the majority of teachers and administrators in the United States. In order to avoid another case of intellectual incest, we must direct our efforts toward *both* the "haves" and the "have nots."

As perhaps the only nonprofessional here, though one who has lived in an academic environment, I have the audacity to close with a plea. You, in this room, represent a brand new breed of educators. You are still a small group, sharing a common dedication. For good reason, your ranks will have to grow. Can you avoid the tragedy that we see in other educational disciplines, of falling into that all too common, unnecessary and wasteful trap of indulging in professional infighting? Please don't polarize. There is more than enough for all of us to do. We must continue to report not only our successes *but* also, and perhaps more importantly, our failures. By sharing these we can hopefully avoid some mistakes that have been made, and thereby use our limited time and energies more efficiently.

There is no more important facet of education to be cut. Only by cooperating, by listening and learning from one another, can this small, pioneering, essential group of missionaries hope to be successful.

Mr. Stephen Salyer: George Woods who is a former president of the World Bank and also is a member of the United States Population Commission, was visiting several South American countries a few years ago. While in Brazil, George talked to one of the government leaders urging that Brazil become involved in the business of family planning. The leader listened very courteously to his comments and responded, "Well I respect what you are saying, Mr. Woods, and I understand and appreciate your concern. I want to ask you how you feel Ulysses Grant might have reacted had I visited the United States in 1870 when he was President and said, 'Mr. Grant what your country really needs is population control.' He probably would have said something like, 'You know we have got other matters that are a little higher on our agenda, like settling the west. . . .' " I think that this is the kind of feeling that some Brazilians have today in regard to their rapid rate of population growth. I am not trying to defend the logic of their point of view; I am saying that these are feelings which must be considered in dealing with many developing nations in Africa, Asia and Latin America. It is often equally difficult to tell those living in ghetto areas of our own country that controlling family size is in their best interest—particularly when they rightly perceive their problems as relating to poor housing, inadequate medical care, high rates of unemployment, and inadequate political muscle to stimulate needed change.

Let us be very candid; only the most extreme doom sayers contend that population growth in the United States is a matter of survival. Other nations with 3 or 4 percent rates of increase may be threatened with matters striking much closer to this basic issue of life and death proportions. Minority groups have every historical justification, moreover, to view the population problem suspiciously from a perspective of ethnic survival. Thus, we must recognize that population education, like other parts of a population or development strategy, has varying significance to different individuals and groups in the United States and in other nations. Moreover, because population issues are so interwoven into the social fabric of a society, any attempt to engineer a policy—without questioning poverty, medical care delivery and other issues of fundamental social importance—will be disastrously narrow and will likely alienate "have nots" within the society.

It follows that in teaching population subjects, educators should state the value premises which underlie their evaluation of population problems. Neither the experience of the black inner-city child nor the environment of the rural farm dweller is likely to reinforce concern for a two child average family size. One approach to population education may therefore hold for the suburban youngster but prove wholly inappropriate in other settings.

It seems important to define early in this Conference what population education is and to decide how we get whatever it is across to students. Population education covers a number of subjects, separate but interrelated. First, there is education in human sexuality. There are numerous myths and misconceptions of what constitutes normal sexual behavior in our society and of what proper sex roles are for men and women. We should attempt to clarify these issues. Education in family life relates to this subject but additionally includes discussion of the costs and benefits of raising children. Family planning is a third and integral part of populaton education. We cannot ignore the fact that many young people are sexually active and need the minimal information necessary to prevent unwanted pregnancy. Fourth and last, there is the need to acquaint students with the demographic outcome of aggregate individual behavior. Part of individual reproductive choice should be based on a knowledge of the social implications of population growth and decline.

This Conference should further address itself to the pragmatic issue of how these subjects are most effectively integrated into the schools. Demographic history may be politically easiest to get into the school system, for instance, but the most difficult to design materials for. It may be that contraceptive education will be easy to design but politically impossible to include in most schools.

I have been impressed by what is being done in the sex education field using extra-classroom situations. Extra-classroom channels may provide an alternative to the introduction of sensitive subjects into the formal school curriculum, especially when we know we face a rigidly conservative boards of education. Dr. Sol Gordon's experience in distributing more than 8,000 sex education comic books at the New York

State Fair last year provides evidence of how effective extra-classroom approaches can be. As worn from reading as those comics became, it is worth noting that not one negative comment was received from an adolescent—not a bad showing for many of us frustrated by the limitations of more structured settings.

Dr. Eugene Weiss: In the attempt to determine the goals of population education, it is necessary to emphasize once again the distinction between goals and approaches in population education. We should consider the goals in a more behavioral sense, i.e., in terms of what plans can and cannot be implemented and admit these openly. The major goals toward which population education is directed are: lowering family size and the size of the population in general; establishing government policies which will encourage support of United Nations and American efforts in population control in the developing countries; and preventing unwanted conceptions, which involves both education and the provision of family planning.

The role of population education is also important because ultimately it touches on the general values which we hold for growth and progress. Especially on the local level, we tend to assume that as population increases, we will have more business, more everything. The goals of population education must include changing our orientation and values if we are to move toward resolving the population problem. Although I am not in favor of coercion, we should recognize that it exists in the minds of many and that the question of voluntarism *versus* coercion in implementing population policy is a very real concern.

Another problem has to do with the role of information. Is information neutral? For example, if you do give contraceptive information and tell young people where to get contraceptives, is that going to encourage them to be more active sexually. I don't know of any research that verifies or precludes such a consideration, but we can't assume that we can disseminate information and then expect people not to use it. We should be more responsible for education and admit that information is going to have an effect.

On the subject of approaches, I support Dr. Davis in stressing the need to give contrary viewpoints. We have to interpret population issues as they impinge upon the particular students that we are dealing with. You can not talk to students about something they don't understand; especially something which will affect them years from now when they don't even know what is going to happen next.

A study I have been conducting indicates that there is a relationship between the concern for overpopulation and a smaller desired family size. In a nationwide study of about 1,600 19-year-old boys, we find that the third of the sample that is most concerned about population wants about 2.3 children, and the third of the sample that is the least concerned about population wants 3.3 children. This is not a large change statistically, but it is demographically. In addition, while investigating the influence of population knowledge on the relationship between the concern

for overpopulation and a desire for a smaller sized family, I asked some very simple questions about basic population information. I was very surprised to find that these persons knew very little about the simplest demographic facts. However, knowing more about population did not increase the relationship. In fact, it had less influence than the effect of the general intelligence level. I believe this is because the kind of population information that is available, even to the minority of people that are interested in the subject, is not very relevant to young people.

Progress in the population education field thus far has resulted in a lot of publicity, a general awareness; people right now are more or less willing to accept the idea that population is a problem without knowing very much about it. One of our tasks is simply to make people more aware of the knowledge in order to back up the already existing concerns.

Discussion Points

☐ The element of coercion in population education has to do with the educational methods used and not the goals aspired to. We have the same problem in any kind of education.

☐ We must distinguish between the goals which guide a teacher in the classroom and the goals which he follows in his own life, through his own philosophy. A teacher may have values and a particular view of society, but he is expected to use educational techniques that allow students to form their own values and to come to their own conclusions.

☐ The need for a problem-solving approach in education and in the classroom should be stressed. Young people should be given unbiased information and encouraged to form their own opinions and conclusions so that they can choose the alternatives most suited to their own needs and desires. Unfortunately, we do not take the problem-solving approach frequently enough into either the elementary and secondary schools or into the colleges and institutions of higher learning.

☐ The whole problem of coercion in education is not the real issue. We all have different attitudes and biases. Can a teacher ever be totally objective in presenting information? Is information neutral? If teachers try to present information as best and objectively as they can, can we ask for more? Society is composed of diverse points of view, and we are continuously going to shift from one side of the balance to the other concerning any problem because we do not live in a static environment.

☐ Let's wrestle with the notion of a socially sanctioned position on population issues. We have many socially sanctioned persuaders for our laws and standards, and they clearly constrain behavior in certain areas. Many of the socially sanctioned elements of persuasion currently are rigged in a pronatalist direction, possibly reflecting our historically pronatalist attitudes which at one time paid off economically to both the individual and society. Now we are in a situation where those pay-offs no longer exist. They are being replaced by major penalties.

The difficulty is, how do we sanction the changing of the established ground rules? Some public debate and understanding is essential for changing the direction of these already socially sanctioned coercive measures.

☐ The stereotype pronatalist image that "women must have children" should be destroyed. Even by limiting the message to the "stop at two" line, we may be undermining decisions by some women to have only one child or no children or to pursue a professional career rather than marriage. If we can approach the question of the role of women more objectively, then we will encourage greater and more independent choice.

☐ A distinction can be made between sex education and population education both of which need to be brought into the schools. Because the two areas overlap in the area of human reproduction and contraception is no excuse to put them together in a program of instruction.

Sex education is the study of human sexuality of males and females from birth to death. It touches every single facet of our lives, and because of its subjective nature helps a child come to terms with his own sexuality within the Western world. We are not necessarily learning about the sexual mores in Pakistan, for example, but are trying to help a child understand himself, his motivation and drives as they relate to sex.

On the other hand, population education is objective and develops an awareness of how population is affecting all areas of the world in terms of social, political and economic factors. However, if the only way to have sex education in the school system is by the population route, go ahead and use it. And by the same token, if the only way to include population education in the curriculum is via sex education, this integration of subjects is alright for a while and certainly better than nothing.

The Relationship of Population Education to the Accepted Disciplines and to Other Multidisciplinary Education

Professor Hazel W. Hertzberg
Teachers College
Columbia University

Curriculum reform movements typically approach their task with little or no reference to what may be learned from past experience with reform. However evidence-oriented our disciplines themselves may be, we are apt to ignore what evidence may exist about what "works" or does not "work" in education and to create new curricula based on what we *suppose*—often judging from our own or our children's experience in school or what seems plausible to us—rather than what we actually *know* about a broad spectrum of educational experience.

There are many reasons for this historical amnesia, including the circumstance that new movements usually have new leadership unfamiliar with the curricular past; that our own methods of evaluation are still primitive—so primitive that we have not yet even developed an adequate tradition of reviewing curricular materials, and that we have not thought the historical record of sufficient importance to create it from the primary sources available. One consequence is that we have very little firm knowledge of how curricular reform diffuses, how it gets into the classroom—if it does—and what happens when it gets there—if anything. The population education movement could make a major contribution to our knowledge of change in education if every project kept records of how their materials were developed, of how they were diffused, by what routes they got into the classroom, and what happened to them when they got there. I long for—but do not expect to see—a project whose major concern is not with population education, or environmental education, or sex education, or education about drugs, or what have you—but with recording and analyzing the processes and problems involved in the educational changes we hope to bring about.

Our neglect of the curricular past is highly inefficient—anyone who has been around education for a while finds himself appalled at the number of times the wheel can be, and is reinvented. In the case of population education, it can seriously impede acceptance of our curricula. For the past decade teachers have been asked to teach new materials in new ways—the new math, science, social studies, etc.—and more recently many of them have been asked to abandon a set curriculum altogether and to teach what their students, or their parents, say they want to learn. We are going to ask them to change again. Some of our young teachers, we are finding, were trained in the new social studies in high school and are well aware of its deficiencies. I suspect strongly that the same can be said of the parallel movements in science, math, etc. Curricula which ignore this accumulated experience of teachers and students will not find much receptivity.

Curricular reforms arise in response to specific historical circumstances and usually continue to reflect them even when the circumstances have changed. The new math, social studies, etc., were essentially a product of the '50s, of cold war foreign policy concerns, of fears that the schools were intellectually flabby, that learning was boring, that we were producing a generation of virtual illiterates. The new curricula produced reflected these interests, and represented a type of curricular reform which has recurred periodically—what might be called a cognitive model—one which stresses individual disciplines, their concepts, methodology and fields of knowledge; which casts the student largely in the role of the scholar fascinated by the mode of inquiry of the disciplines and by the ways knowledge is discovered and developed; which envisions the ideal student in a middle class, suburban setting as a college-bound, highly verbal, future professional; which is concerned with remedying the scholarly deficiencies of the teacher; which has relatively little interest in affect or in problems of society; and which derives its primary leadership and support from practitioners of disciplines and from learned societies rather than from "educationists." By the time the new project materials produced according to this model began to reach the schools, the quiet of the '50s had given way to the turbulence of the '60s, and the new curricula were launched into a world far different from the one in which they arose.

The educational critics of the '60s attacked the schools on almost exactly the opposite grounds from those of the '50s. Many of them opposed any curricula at all except that which was created on the spot. They represented an extreme but by no means unfamiliar version of the other major type of curricular reform—what might be called the affective model. In contrast to the cognitive model, the affective model is one which emphasizes a multidisciplinary approach geared to problem solving—or sometimes casts aside disciplines altogether and focuses solely on problems, whether social or personal; which is concerned more with how a student feels than how he thinks, with his present, his immediate environment and personal relevance; which envisions the ideal student in a working class or at least a non-middle class setting;

which sees the student as the future social reformer, (or sometimes just good citizen); which is concerned with the teacher's lack of feeling for the culture of students; and which derives its leadership from reform organizations and schools of education. The movement which encompasses population education, environmental education, sex education, drug education, etc. is, I believe, a current version of this model, and is essentially a response to the concerns of the '60s. It will be helpful to us to keep this in mind and not repeat the mistake made by the new social studies and other '60s curriculum reforms. Our curricula should be designed not for the '60s but for the '70s. We might take note that there are clear and obvious signs of cooling off and we may well have to deal with widespread student apathy rather than demands for student involvement.

I hope I have demonstrated that it is worth taking a look at the past. In the remainder of my time I am going to try to answer the question, "What can be learned from the past that will help to create more effective curricula?" I shall suggest some matters for your consideration based on what I know of the history of the social studies and on participation in the creation of curricula which partake of both models of curriculum reform. My own ignorance forces me to limit myself largely to the social studies and to the junior and senior high school. I hope my colleagues will comment from the perspectives of their own differing fields and experience.

My comments will fall under six headings:

- ☐ Problems concerning the nature of the disciplines and multidisciplinary cooperation.
- ☐ The question of a K-12 population curriculum or spirally organized population concepts.
- ☐ The feasibility of infusion and/or multidisciplinary approaches at different grade levels.
- ☐ The relationship of the disciplines to student readiness.
- ☐ The conception of population as a "problem."
- ☐ A plea for modesty.

First, problems concerning the nature of the disciplines and multidisciplinary cooperation. One of the most valuable aspects of the new social studies was the fact that it forced us to think in new ways about our disciplines. It is extraordinary but true that practitioners of a discipline rarely attempt to put it in comparative perspective, to try to define what distinguishes it from other disciplines—what is unique to its outlook and methodology—and to analyze the extent to which it resembles and overlaps with other disciplines. Much useful work on these matters was done in the '60s and we should build on it, for it will help us whether our approach is to infuse population education into the present structure of subjects or whether we seek to create new relationships among subjects.

In the '60s the disciplines were thought of as valuable in themselves for students to "know." But their relevance to the students was conceived of as an academic one. On the whole, the disciplines were not thought of as patterns of thought, feeling and behavior applicable to one's everyday life or as guides in the solution of future problems of a nonacademic variety. Some minor efforts were made to use the various disciplines to analyze the immediate world of the student—the classroom, school, neighborhood, community—but these tended to be merely illustrative.

If our disciplines are valid ways of organizing and interpreting human experience, and of linking us to the whole natural world, then they are susceptible of application to situations close to us as well as those remote from us. By so using them, students could begin to see their relevance, not just as academic exercise, but as useful in developing ways of discovering and identifying new patterns and regularities in the familiar world around them. I suggest that the disciplines are profoundly therapeutic; that through them we can help to bring our lives under some sort of cognitive control; that they function as mechanisms to relate us meaningfully to the remote in time and space; and that as they expand our consciousness they at the same time shut out areas of human experience. I suggest therefore that we push further our analysis of the nature and domain of the disciplines to include some attempt to consider their pyschology, to conceive of them as world views, as ways of bringing order out of confusion, of finding new meanings in our own experience.

Such an effort is needed, I believe, whether we are concerned with infusing population education into the traditional subject matter of the schools or whether we are to attempt to organize population education around the development of meaningful relationships among either closely related or remotely related disciplines.

During the '60s almost no thinking was done on how the various disciplines could jointly be brought to bear in illuminating a topic or problem. In the social studies, there was little effort to establish conceptual relationships even among the disciplines which comprise the field (that is, history, political science, economics, anthropology and sociology). Interest in the two culture problem was virtually nonexistent. If in population education we are going to work beyond the disciplines usually grouped together, to encourage combinations of, for example, social studies and science, history and sex education, ecology and literature, we are going to have to think about the nature of our disciplines in a new way, and to search for educationally valid relationships among them.

In such a quest, we cannot get much help from the reform movements of the '60s—the individual discipline-oriented, cognitive model. Rather, it will be helpful for us to look at a multidisciplinary, affective model, such as the Core curriculum which arose in the ferment of educational and social reform in the '30s. One version of Core was organized around combinations of disciplines. (Parenthetically, another was organized around the "personal and social needs of youth" as defined by

students—sound familiar?) Some typical combinations were English and social studies, and science and social studies, but almost all the subjects were to be found in some combination. Typically, a block of time longer than the usual class period was set aside for this enterprise which was thought of as the heart or "core" of the entire curriculum.

There are many reasons for the demise of Core, but the following were certainly of primary importance:

1) In combining disciplines, almost no attention was given to a serious examination of their several natures and of what conceptual structures might be developed through which they could function and could be taught and learned together. This conceptual weakness was virtually fatal. If we are to go beyond simple parallelism and avoid the failures of Core, we shall have to create or discover new concepts linking the disciplines. This process will be analagous to the definitions of our disciplines which we struggled through in the '60s. It is one of the most difficult and at the same time most interesting tasks before us.

2) Teachers were assigned to teach combined subjects with training in only one of them and therefore tended to neglect the one they didn't know or to teach it in a routinely traditional manner. When teachers from several disciplines worked together (team teaching is by no means a recent invention), little attention was given to the differing perspectives from which they approached the problem at hand. It was not realized that each had to learn the other's language and to do so that they had to achieve a certain degree of objectivity about their own. I suspect that this is going to be a very difficult, albeit fascinating problem for us and that we shall probably encounter, for instance, a good deal of hostility towards science by social studies teachers, and a good deal of naivete about society on the part of science teachers.

Let us turn now to a consideration of the other questions raised, which I shall discuss more briefly.

Our second question was: Should we attempt to create a K-12 population curriculum or some modification thereof? Should one of the subjects—such as biology—be developed as the 'core' course to tie the various population concepts together? Should we attempt to construct a spiral of population concepts arranged in developmental order, to which the student will return as he moves through the grades, finding in them successively richer meanings?

Previous efforts in the social studies, at any rate, leave me very pessimistic about the feasibility of any of these suggestions. Complete curricular reform has been an almost total failure. Spiraling concepts have tended to remain as lifeless lists prominent in the literature but ineffective in the classroom. And perhaps this is just as well. Total curricular reform would probably produce a curricular situation even more inflexible than the present one. It is probably both unrealistic and undesirable to attempt to fix now what a child entering school should be

sometimes, crowds are nice

studying about population throughout the next 12 years. We have only to look at the controversies in the field of population today and to compare them with the situation of a decade ago to see how rapidly change can take place. A more realistic approach, I believe, would be to design cumulative, reinforcing units to be used at intervals within the same year or in neighboring grades over a two or three year period.

The next question concerns where in the curriculum is either the infusion or the multidisciplinary approach most likely to be accepted? Between the junior and senior high school, the answer is, I believe, quite clear. The junior high school is much more receptive to multidisciplinary approaches than the senior high school, perhaps because teachers are not so discipline oriented, perhaps because of the age and interests of the children, perhaps because college is still a bit distant. It is significant that the multidisciplinary Core curriculum—the affective model—was much more widely accepted in the junior high than in the high schools.

The subjects most commonly taught in social studies in the junior high school lend themselves rather well to multidisciplinary approaches. The local community, regional, or state history which forms a widespread curricular pattern in seventh grade, provides a meeting ground for social studies and science. Eighth grade American history is probably the social studies area least affected by the curricular movements of the past decade and most in need of fresh materials. At least three of its conventional topics—colonization, westward migration and immigration, are obviously suited to a population emphasis. Ninth grade—where area studies are now widely taught as a result of curricular reforms of the past decade—is rather deficient in materials since the '60s' projects with their disciplinary orientation did not take much interest in the kind of interdisciplinary approaches suitable for comparative work in area studies. Population dynamics—especially family structure, migration patterns, urbanization and economic development—could provide a most valuable recurring curricular theme for comparing the various areas studied.

In the senior high school, twelfth grade electives and/or Problems of Democracy courses present the best opportunity for multidisciplinary approaches and probably for separate mini-courses in population. Infusion is probably the most realistic way of introducing population concepts into tenth grade European history and eleventh grade American history. It would be especially valuable to create matching units for the two grades so that European and American population change could be viewed comparatively.

The next question is concerned with the relationship, if any, of our disciplines to the developmental readiness of students, a problem which has been poorly dealt with in curricular reform. In general, the new social studies handled this question by assuming that the needs of students were similar to the needs of the disciplines and that they could be linked by arousing student interest in "discovery." Affect was virtually ignored. One theoretician of the movement declared that, in effect, any subject could be taught to any child at any level. Although some of the

projects attempted to use learning theory in constructing curricula, this area must be counted as a serious failing in the movement as a whole.

Nor was the affectively oriented Core curriculum more successful in dealing with this problem. The question of readiness was often handled by turning over the decision on what to study to the students themselves combined with a little judicious teacher manipulation or by identifying student interest with current social or personal problems.

My question—which I find difficult to formulate and to which I do not have a satisfactory answer—is this: Are there particular insights or readinesses which students have at one age and not at another or more fully at one age than another which should be reinforced at their prime? Or conversely, are there topics or subjects or ways of knowing which should simply not be taught at particular stages because the child has not acquired the readiness to grasp them, or has already passed them by? What particular strengths does each developmental level have, which might correspond to disciplinary requirements? For instance, many topics in population dynamics require the presence of a long-term time sense, of an ability to imagine to some degree a rather distant future. It is questionable whether this sense is present in anything beyond the most rudimentary form in elementary school students. Some conception of the past seems to develop in junior high school students as they acquire a sense of their own past as distinct from their present. When does a similar sense of the future develop? This is only one example of the many types of questions which should be raised about student readiness so that we may try to bring together in a meaningful way the needs of students and the needs of subjects.

I believe that we should be able to learn much on this matter from sex education since it is probably the only subject in which the first consideration is likely to be the intellectual and emotional readiness of students—and I would very much welcome comments from my colleagues on this score.

There are only two more items on my list and I will treat them briefly. The first concerns the concept of population as a problem. I believe that most teachers and students will initially view population in this fashion. One should recall that interest in population education first arose in the developing countries where population growth threatened to overcome economic progress. In these countries population education is at least implicitly designed to induce people to have fewer children. In this country, interest in population education is more recent. It has arisen linked with deep concern over pollution, "overcrowding," crime, cities (also thought of as a problem), etc. It is frequently discussed in apocalyptic terms.

For those who believe that population increase has already reached or neared the disaster point, the temptation to engage in propaganda rather than education will be very great. I urge you to resist it: There is no surer way to kill off population education than to treat it in this manner. It would be tragic if this happened because population literacy is one of the basic needs of our society. We have developed in the schools a

whole panoply of ways to deal with issues in controversy, and we should use what we know to develop more. Perhaps the best antidote to indoctrination is to formulate our objectives as clearly and in as behaviorally a way as possible—to abandon insofar as we can a hidden agenda and to be as honest with ourselves and with teachers and students as we are able to be.

In closing, I would like to put in a quiet word for modesty. Many curricular reform movements are alarmingly and naively grandiose. When the promises are not delivered, disillusionment sets in. I would hope that we could manage to maintain a serious commitment without making inflated claims.

There are two objectives of population education which—if they could be achieved—would constitute a genuine contribution both to education and to society. The first is to develop in a significant number of students the capacity, skill and desire to analyze from a variety of perspectives new questions relating to population as they arise in the future and to act on them as citizens. The second is to nurture in a significant number of young people a willingness to consider seriously the needs of society as well as their own personal desires when they form their own families. If we come anywhere near realizing these objectives we shall have succeeded magnificently.

Panel Discussants

Dr. Evalyn Gendel: I would hope that we allow for alternatives and options in developing the population education curricula to fit individual community needs. Each school system is very much like an individual patient. You may have 10 patients with diabetes, but they are not all going to receive the same treatment. The prescription and treatment will depend on many, many facets of their lives. A comparable situation exists in population education (and all education) where communities and education systems vary tremendously.

The process of defining the broad concerns of population education is going to determine, by and large, what comprises the population education curriculum and the guidelines used at the local as well as the national level. To facilitate this process and to insure that the population education curriculum is relevant, it would be useful to investigate students' interests and needs regarding population problems. For example, in an Office of Education study prepared by the Connecticut State Board of Education, the primary task was to determine what should comprise the health curriculum. Approximately 5,000 people were involved in the interviewing program. The people who interviewed them were other students, fifth graders interviewing third graders, eighth graders interviewing sixth graders and so on down the line. College students and faculty were also involved at various points. The same questions were asked across social and economic lines, racial lines, age lines, etc., things like, "What is health?" We found that in applying K-12 instrumentation that the students' interests across socioeconomic lines were fairly

consistent according to developmental age. Of great surprise to many health educators was at what age students wanted and were ready for particular subjects. The health curriculum was then built from this study.

The interests of the teachers should also be evaluated in setting curriculum guidelines. I work as a resource person to educators in the Division of Maternal and Child Health of the Kansas State Department of Health. We are concerned with human growth and development which encompasses as broad a field as does population education, and our programs have to be tailored to each individual curriculum system, to each individual school system. I have asked various school systems to do an inventory of all their teachers, K-12, to find out what they are doing in human growth and development, regardless of the subject they teach. Generally we conclude that teachers prefer to infuse a subject area which interests them into a strong area of the curriculum. Only teachers can best determine exactly how to mold a particular curriculum design to their needs. If we present guidelines somewhere along the line or a series of concepts, we should bow to the integrity of the educator in his own setting to establish the manner in which he is going to diffuse this program.

In addition, successful education programs have lasted because of a basic commitment on the part of the majority involved. A single teacher interested in providing a program on population education for her students without a commitment from the total education process of the particular school system simply is not going to make it. I feel very strongly that the greatest commitment and support of the population education endeavor will be achieved if we are sensitive to the needs of the students, teachers and school systems at the local level, and if we encourage flexibility in developing approaches to population education curriculum.

Prof. Robert Stegner: My ideas about population education have evolved in the course of my work in the Population Curriculum Study at the University of Delaware. I am one of a large group of teachers who have attempted to interrelate the natural sciences, social sciences and other disciplines into the K-12 program of population/environment studies. We propose to diffuse these multidisciplinary studies into existing school programs. We believe that the guiding concept should be that *man is part of a natural system, the Earth, and is ultimately subject to the limits of that system.*

We have prepared a system of subconcepts as a structure for a schoolwide program of studies to include population education, sex education and environment education. It is our position that these studies cannot be separated without loss of significance.

Population/environment studies should include consideration of economics, politics, lifestyle, industry, land use, population size and distribution, and esthetic qualities. We have never really planned the growth and development of our communities. Our views of population and environment issues have been fragmentary, and we have tended to merely accommodate the population pressures of the moment, dealing

with the symptoms of our ailments, not their causes. A fragmentary or superficial approach will not suffice.

Similarly, in curriculum development, we should view the educational system as a whole. To do this, we must formulate a broad conceptual scheme. Using the conceptual scheme as a framework, we can make shifts in orientation of subject matter with only slight changes in the courses of study and without disruption of existing school programs—a process of educational evolution rather than educational revolution. We must utilize the experience and knowledge of each teacher in his own discipline at the same time making all teachers aware of the schoolwide objectives and opening doors for cooperation of teachers.

At the same time that we cooperate across disciplinary lines to achieve common cognitive goals, we must also give attention to the teaching approaches. Thus, we should *first* establish a conceptual scheme and *then* proceed to attain the concepts through appropriate processes. Similarly, we believe that values and attitudes will develop as learning proceeds and that we must allow for great diversity and freedom of choice. In other words, we believe that values are "caught," not taught directly.

To carry out such a program, a central clearinghouse for education experiences that are being produced all over the world by involved persons would be a great help. In this way we could share and learn from the experiences of others in the population education field. In the final analysis, however, the articulation of these educational experiences in a comprehensive conceptual scheme is essential to a truly multidisciplinary infusion approach to population/environment education.

Discussion Points

☐ If we are going to create national population education programs for dissemination throughout the nation, we must conceptualize and define the field of population education, define its relationship with other fields and acknowledge its multidisciplinary nature. The Commission on Population Growth and the American Future is presently involved in this process of conceptualization and definition.

☐ One difficulty we now face is that there are as many definitions of population education going around as there are people working in the field. Here the problem of definition may be compared to the definition of sociology in the latter half of the 19th and early part of the 20th centuries. The definition of sociology was not reached by sitting in meetings and thinking up definitions, but rather was derived through experiences in the field and by the developments in different cultural settings.

With this in mind, PRB's definition as stated in the *Bulletin* entitled, "Population Education: A Challenge of the Seventies" may be very useful. It is not an "is" kind of definition, and at this stage it is very important that it is not a transitive verb.

> "Population education seeks to bring about a realization of the individual, family, social and environmental effects of the explosive

increase in human population, the rapid shifts in the concentration and distribution of people, the implications of changing age and other demographic patterns, and the conceivable options that may be open to mankind to cope with the consequent problems. While it is confined exclusively to a particular age group, it is focused primarily on students who will become the principal childbearers within one or two decades."

☐ One major contribution to the field of population education is the term "value-fair" whereby "opportunities for evaluating competing theories and for exploring values and their consequences must be provided and encouraged."*

☐ In teaching and understanding of alternative futures, both one dimensional and multidimensional approaches should be recognized as legitimate. There may be times in students' development in which they are particularly ready to handle certain ideas and concepts. The existence of many approaches will allow for a greater flexibility in teaching.

* Viederman, Stephen, "Population Education in the United States: A Report to the Commission on Population Growth and the American Future, October 1971," Washington, D. C.: Government Printing Office, 1972, p. 35.

The Broad Requirements for Meeting Population Education Needs

Michael F. Brewer
President
Population Reference Bureau, Inc.

To be an operative, creative process for socializing the young, population education must have material resources. The budget needed for population education must be estimated, and the likelihood of support assessed. In the Conference discussions thus far, various speakers have identified concepts, activities and materials they view as essential for population education. We have developed a list of needs which I am sure will be substantially extended before our Conference ends. Priorities have not yet been attached to the items included. Until there is some sense of priority among these needs which reflect the collective wisdom of educators and others of us concerned with population education about which gaps are most critical to the overall effort, we will not have articulated a real "demand" for resources. When there is active competition for limited public dollars, contenders must be able to indicate what they would do with various amounts which might be made available. This is a challenge for the entire population education fraternity.

Some will argue that it is neither desirable nor reasonable to assign priorities in such a new and critical field as population education. The argument may run that the elements of so organic a process as learning and education cannot be separated—that all of the links in the chain are needed if it is to be operable. The presentations and discussions of our fellow conferees have emphasized the need to provide for conceptual schemes, for factually accurate and pedagogically exciting materials, for teacher sensitization and training, for administrative and community education and for an opportunity to exchange ideas

and experience gained with fellow population educators. All of these are important for an evolving educational field.

Individual speakers here at the Conference have been representatives of or spokesmen for various parts of the educational universe of which we speak. Student teachers understandably are concerned with their universities providing them more adequate training and education in the subject. Administrative and supervisory personnel are acutely aware of the community's reaction to programs designed in the population field, and recognize the need for community education facilities. The classroom teacher wants good material and techniques. Curriculum designers see both the opportunity and need to experiment with, modify and retest their models and sequential techniques by which population education can be integrated into other subject areas.

All of these concerns entail innovations and activities which require money. However, rarely are we faced with all-or-nothing choices. Despite protests to the contrary, I do not believe that population education is an exception. The materials prepared for the Commission include one estimate of the costs of a satisfactory national population education effort—at least satisfactory from the standpoint of the author. I am sure the exercise could be repeated by others, and the totals varied upwards. Such an amount of federal support is not going to be forthcoming instantaneously. I think the community of population educators had better accept this rather than scolding to the contrary. When this is accepted, one then needs to identify the components of a complete population education system and determine which of them should receive highest priority. Various criteria may be used in making this determination such as public acceptability, the difficulty of doing what is needed, the amount of money required and the time lag involved between initiation and satisfactory achievement of what is planned. The point is not to argue for any particular set of these criteria, but to suggest that until priorities are assigned, population education enthusiasts cannot articulate in a practical way a demand for public support which can effectively compete with other socially valuable claims on the same resources.

What are the sources of support for population education in the United States likely to be? To a large extent—and especially initially—they will be federal. Authority for population education expenditures exists, and some programs are either under way or are being planned in the Office of Education and in the National Science Foundation. However, they almost certainly will involve substantially fewer dollars than the totals which educators have in mind. To materially increase those budgets will be neither quick nor easy.

Gaining federal support for a large domestic, civilian purpose is strengthened if certain preconditions exist. I suggest that there are a number of essential prerequisites which must be met by population educators before significant funds from these federal agencies are going to be devoted to population education. One of these is for clear identity and the establishment of a constituency which provides both incentive

and rationale for agency participation. Another is a reasonable degree of consensus on where critical priorities should lie—at least for the immediate period. A third prerequisite is the demonstration of some capacity by the population education fraternity to deploy resources sensibly in order to get the job done. Finally, there needs to be evidence of a capacity to monitor and evaluate what has been done and what is accomplished.

Do those of us concerned with population education have the coherence, common purpose and discipline to compete with other educational interest groups and with other national purposes for public dollars? The balance of this Conference should shed some light on this question.

Panel Discussants

Dr. Louis M. Hellman: Legal authority for population education in the Department of Health, Education, and Welfare is derived from two major sources, the "Family Planning Services and Population Research Act of 1970," (P.L. 91-572) and the "Environmental Education Act," (P.L. 91-516).

One of the stated purposes of P.L. 91-572 is to develop and make readily available information (including educational materials) on family planning and population growth to all persons desiring such information.

P.L. 91-516 included population in its list of priority areas for environmental education.

The National Center for Family Planning Services, Health Services and Mental Health Administration, and the Center for Population Research, National Institute for Child Health and Human Development receives most of the funds authorized by P.L. 91-572. The Act made $1 million available in 1972 and $1.25 million in 1973 for grants and contracts for patients to make family planning and population growth information available. The National Center for Family Planning Services in HSMHA requested $750,000 for educational purposes in the 1972 budget.

The Office of Environmental Education in the Office of Education will administer the $3.5 million authorized by P.L. 91-516 for all environmental education. Less than 10 percent of this will be awarded to projects which deal with population matters. An additional $11 million will be available from other sources and some of this will also support population education projects.

Since population education has only recently become a priority area, HEW activities are conducted independently by organizational elements of the Department.

Secretary Richardson authorized the formation of an Ad Hoc Committee on Population Education to coordinate and expand Departmental activities in population education and to initiate new programs. The Office of Population Affairs was designated by the Secretary as the lead agency for population education within HEW and to act as liaison with other federal agencies, private organizations and groups.*

* This Office of Population Affairs was so designated by the Secretary on January 16, 1972.

In most HEW programs, population education has stressed the family planning health and welfare benefits to individuals and their immediate families. There has been little attempt to provide population education in the broader aspects, such as the effects of the changing size, age and distribution of population in the aggregate. Since concern for population changes in this sense is fairly recent, this is not surprising. The Commission on Population Growth and the American Future should help provide a definitive study to aid in population education efforts.

Dr. Robert Gilkey: The Office of Environmental Education acts as an implementing agent by pooling and redirecting available resources. Although the Office has very little influence in establishing guidelines and granting awards to these programs, it has made an increasingly significant contribution in the search for a definition of environmental education. In this attempt, we are looking in two directions: first, to break up the term environmental education. Ask yourself what is environmental education. Immediately the response is human ecology. There is a general consensus developing which comprises at least three basic components of the problem of human ecology—population, environmental pollution and depletion of natural resources. Jay Forrester of MIT has included a fourth function which he calls quality of life. In any case, this is a way in which we tend to consider the subject of environmental education, namely human ecology.

In developing a systematic formula for approaching the problem of environmental education, we are also looking at field work. We reviewed 2,000 proposals last year and instead of throwing them away we have analyzed them and established 350 categories for the purpose of further determining what environmental education encompasses. This surely is not the only method to follow, but at least we are trying to formulate the problem more clearly, and at the same time come up with some of the answers.

But that is only half of the problem, only the theoretical side. The other half is methodological and involves transferring practical purposes into workable plans. We seem committed to some kind of education, but we really don't know what is meant by "education is all things to all men." Some consensus does favor the multidisciplinary approach, but in many cases we are just as uncertain about this method as we are about the subject matter itself.

The Office of Education contributes something in the neighborhood of 7 percent of its annual budget to environmental education. Last year our program was about $2 million and this year about $3.5. It is not going to be nearly as great as we had hoped. Perhaps in view of this, the environmental and population education efforts should remain separate in terms of legislation in order to obtain the maximum possible funding and support.

Dr. Charles Whitmer: The National Science Foundation does have a very broad legislative mandate which says that we shall provide grants

for the improvement and development of the science education research potential. All we do in education is done or justified legally by its contribution to the sciences as research potential. You might conclude therefore that we are only concerned with science-oriented students. Our early emphasis was in this limited area, but we have progressively broadened our interpretation of research potential to include the general training of all students in our schools. We have given increasing emphasis to the social sciences and interdisciplinary fields. We have approached this change in emphasis on the basis of national need. Since we are using federal funds, we have to ask the questions: Why should the federal government be involved? and In what areas should the government be involved and why should it be responsible instead of the states for increasing the educational capacity of the schools?

These questions can be answered generally by saying that the federal government in our view should be involved where resources are not available locally; where needed human resources and financial resources cannot be provided by the states or local systems. A large effort in terms of federal support and funds may enable a particular program to get started and may even accelerate the progress of research and implementation which would be impossible with only local support.

With this background of justification for federal assistance in the field of education, let me say that the National Science Foundation has been in the business of supporting the development of curriculum and of teacher training for some time. Some programs are related directly to curriculum development, and others have come under an increasingly general context. We have dealt predominantly with teachers at the secondary school level although we have worked with teachers involved in the elementary school sciences. We now have commercially available to schools sets of curriculum development materials which provide alternative methods for implementing change in the schools. The schools can use any of these programs they wish; whether they do or not often hinges on the need of providing assistance to implementing the change.

The need to recognize the problem of implementation of new subjects such as environment and population education is a critical part of any reform movement. The job of training teachers to implement new areas of instruction and preparing curriculum materials is a continuing problem. Since the 1950s we have spent something like one-half billion dollars for this purpose and we still have not solved the problems. However, we have gained insight and experience in dealing with curriculum change, and have, we believe, made a major impact on science education in the schools.

In all of our major curriculum development studies, the rate in which the money was spent usually starts at a very low level of expenditure and then goes up to a peak that levels off after a time. When you are treading on new ground, it is better to start on a small scale; to do planning and research slowly at first and then gain momentum. In our funding of teacher education associated with a new curriculum, the

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Artist: Boyd Hatrick, Waynesboro, Virginia

efforts and the funding increase as the curriculum development begins to be available in a form that makes sense to the teachers and scholars.

In selecting particular curriculum development programs, we must consider the identification of the actual need in the schools as seen by the proposer or proposers. So here we need to muster information from users and experts who are working in a particular field. The justification for the dollar spent must be quite explicit in terms of what mechanisms are used, what is required in getting the job done, what kind of curriculum development is needed, what kind of evaluation for measuring output will be done and finally what you do with the product that you have.

A national program for curriculum development must plan for a large share of its funds to be spent in teacher education. Obviously we cannot reach all teachers. We have been using a workshop technique for bringing together teachers, administrators, supervisors—usually one of each of these from a given school system—who will receive intensive exposure to new materials, see what the problems are in teaching these new materials and get enough background so that they can go back and serve as in-service implementers in the local community. This seems to be a good way to use the material and to insure that the materials can be effective.

In addition to this we have programs which provide funds for cooperative efforts between colleges or universities to work with local community school systems to implement change by aiding in the introduction of new curriculum materials and teacher training.

If you have the right kind of leadership, experienced teachers and subject matter experts, I believe that a national group can work effectively on most any kind of curriculum development. In our experience, a national study group for curriculum development is a first step that can be combined with appropriate teacher education in the effective introduction of new materials, such as population education, into the schools.

Discussion Points

☐ Governmental granting offices could respond more easily to proposed population education programs if basic governmental population policy guidelines existed.

☐ In the search for basic determinants of a national population policy, we are asked to consider many value-laden questions. The questions include such controversial topics as immigration restrictions, planned redistribution, family size limitation and abortion. The answers to such questions will help to form the basis for establishing government contract priorities.

☐ How far can we go in expecting policy to shape behavior? A national policy of population education may shape the development of particular living conditions or lifestyles. We should be wary of establishing population education programs which would be too deterministic.

☐ We should guard against controversial proposals which lead to propaganda rather than information, or coercion rather than voluntarism. We are seeking education which will encourage responsible behavior in terms of both the individual and society. By developing an understanding of the environmental and population dilemmas, we will have more political, social, ecological and economic alternatives from which to choose.

☐ We must avoid being too precise in defining population education in our efforts to meet the requirements of the planning, programming and budgeting system of the federal government. While budgeting requirements do involve defining objectives for public activity according to some measurable standards, the population education effort is in a highly formative stage, and should not be locked into objectives which are too specific.

☐ Although some limitations are created by being overly specific in defining the objectives of population education programs, we do need to establish priorities within the general field. If resources are limited, we should recognize where available money can be spent effectively.

guest speakers

The Role of the Office of Education in the New Field of Population Education

Peter P. Muirhead
Deputy Commissioner
U.S. Office of Education

Introduction to speaker

Rufus E. Miles, Jr.
Past President
Population Reference Bureau, Inc.

Several weeks ago I chanced to watch the David Frost show at the time when Malcolm Muggeridge was debating with Paul Ehrlich about whether or not the world was in the midst of a population explosion. Muggeridge asserted with a high degree of confidence that it was a complete hoax, perpetrated by affluent and selfish technocrats who did not want to share their absurdly high level of material prosperity. He went on to predict that science would, within the not too distant future, solve our food and other problems here on earth and would find exciting ways to populate other planets. The population crisis was, he reiterated, a "bunch of bosh."

Needless to say, Paul Ehrlich countered Malcolm Muggeridge's assertions with equally strong statements of his own. He said that if all the food that was produced in the world were equally distributed we would all be hungry and that at present rates of population growth, it would take more than science to solve this problem. On the subject of sending people to other planets, Ehrlich just laughed, and said that he thought we had made enough trouble on this planet without messing up others.

As I watched this colloquy, I wondered how many people had enough understanding of either science or population dynamics to enable them to make judgments as to the relative validity of these two points of view. My quick guess was that we would be lucky if as high as 10 percent of the viewing audience had enough "population literacy" to make intelligent judgments on these matters. And yet the subject is one which is regarded by most of the leading thinkers in the United States and by much of the rest of the world as being crucial to the future of the human species.

Four consecutive U.S. Presidents, Eisenhower, Kennedy, Johnson and Nixon, have each proclaimed that problems of population growth and distribution, and especially the threat of overpopulation is one of mankind's most important and difficult problems. The National Academy of Sciences, beginning with the McElroy report in 1965, also gave strong support to that conclusion.

When a single President of the United States, no matter how wise and popular he may be, announces that a particular subject is one of the most important problems of the human race, one should not expect the independent school systems to rush to modify their curricula to place that subject in a prominent position. When two successive Presidents of opposing parties support each other's position with respect to the urgency and priority of the subject of population, one might think that there would be noticeable motion on the part of school systems to look into the matter and see if "judicial notice" should not be taken of the situation. But when four successive Presidents and the National Academy of Sciences all concur on the urgency and priority of a subject whose solution will require very widespread human understanding of the issues, one might be pardoned for being sufficiently naive as to expect that there would be a significant response from a very substantial number of the school systems in the United States, no matter how highly they cherish their independent status. But very little has happened. Why?

Most of you at this Conference are in a position to have insight as to the answer to this question. It is a question which seems to me to be worth a considerable amount of pondering. Under what conditions and how should some or many of the 18,000 school districts in the country modify their curricula to be responsive to what are identified by Presidents and other leaders in our society as the highest priority social problems? This is surely an extraordinarily difficult philosophical and practical question.

I think it is fair to expect that the Office of Education should have in its collective mind a sense of priorities as to how it should use its resources in approaching the population problem. Being an instrumentality of the U.S. Office of Education, I should think, it would have somewhat greater reason to be responsive to the expressed priorities of four successive Presidents than, say, the Amarillo, Texas school system!

We are delighted that Dr. Muirhead is going to share with us his perspective on the relationship of the Office of Education to the subject of population education.

Peter P. Muirhead
Deputy Commissioner
U.S. Office of Education

Within three days of each other during the summer of 1969, two significant events took place which related and fused the population crisis with the larger environmental and ecological crisis. On July 18, 1969, President Nixon delivered an historic speech to Congress on the population crisis. For the first time a President of the United States offered to accept leadership in this cause and he recommended action to deal with the population problem. The President declared that "today the world population is three and a half billion persons. It took many thousands of years to produce the first billion people; the next billion took a century; the third billion came after 30 years; the fourth will be produced in just 15... over the next 30 years ... the world's population could double! ... With birth rates remaining high and with death rates dropping sharply, many countries of Latin America, Asia and Africa now grow 10 times as fast as they did a century ago." This is why President Nixon declared that "population growth is a world problem which no country can ignore."

Three days later on July 21, 1969, there occurred an event which no country ignored: the landing of the first man on the moon. It has been estimated that more people witnessed that event than any other event in history. And they realized that the earth is perhaps the only oasis in the lifelessness of space, that the earth is a spaceship and it has a finite carrying capacity, and that the life-support systems of our planet are as delicate as the life-support system of the Apollo Capsule.

I have a hunch that what really happened was that suddenly people realized that if the 3.6 billion passengers on the spaceship were to survive the trip they had better get their life-support systems in ship shape and in a hurry.

Although you population educators, conservationists and other environmentalists have been warning us for years, these truths are finally beginning to sink in. Mankind may not get through the 20th century and into the 21st unless we solve the problems posed by overpopulation, environmental pollution and resource depletion, not to mention nuclear warfare. What makes our current crisis so challenging and seemingly intractable is the fact that they are all related to each other and that we must solve them all simultaneously.

With this analysis, most environmental specialists would agree. They would also point out that the economy in general has been growing at a staggering rate; and that this growth cannot continue indefinitely. because the space, resources and earth are finite. It seems inescapable and inevitable that this unbridled growth must be stopped before some ecologically irreversible process sets in and leads us to catastrophe. In the words of one expert, Jay W. Forrester in his book, *World Dynamics*,

"The challenge is to choose the best available transition from the past tyranny of growth to a future condition of world equilibrium."

What then, is the general role of education in creating the conditions for world equilibrium? In the last two years a national consensus has been growing to the effect that education must play a leading role in resolving this crisis. President Nixon in his introduction to the first Annual Report of the Council on Environmental Quality linked environmental improvement with environmental literacy and educational reform. In addition, the Commission on Population Growth and the American Future have reportedly decided that one important component of their final report should deal with the need to raise the "population literacy level" of the American public, particularly that of prospective parents of the '70s and '80s and that the federal government should give significant support to such education.

The Cranston Subcommittee on Human Resources in its hearings on Senate Joint Resolution 108 is considering our nation's basic resources in their relationship to a stabilized population. The proposed Congressional resolution is: "That it is the policy of the United States to encourage and develop at the earliest possible time, the necessary attitudes and policies, and to implement them by sections which will be by voluntary means consistent with human rights and individual conscience, stabilize the population of the United States and thereby promote the future well-being of the citizens of this nation and the entire world."

Within the Department of Health, Education, and Welfare an *Ad Hoc* Coordinating Committee on Population Education has been established to prepare a statement on environmental education and population which will begin to formulate department-wide objectives, strategies and mechanisms of coordination. The Office of Education, specifically the Office of Environmental Education, is playing a central role in this effort.

It is our view in the Office of Education that the population problem is an essential if not the determining component of the larger environmental crisis. What is the specific role of education in achieving environmental quality and resolving population, resource depletion and other problems affecting ecological balance? Education's role is that of providing opportunities for the development of knowledge and understanding among citizens if they are to have the opportunity to achieve ecologically sound behavior.

Some common characteristics of environmental education, derived from two year's experience in the Office of Education and an analysis of nearly 2,000 proposals submitted under the Environmental Education Act provide a kind of consensus of what environmental education means at the present time.

☐ It is a process by which the resources of the educational community are brought to bear on the pressing environmental problems outlined in the Environmental Education Act of 1970.

☐ A multidisciplinary approach is necessary if we are to solve or resolve these environmental problems.

☐ In order to tackle these problems successfully, it will be necessary to forge the widest possible community base and continued community support.

☐ It does not rely upon new courses as such, but rather the infusion of environmental/ecological concepts in existing curricula.

☐ No extensive new facilities are needed, but rather existing facilities can be adopted for new learning experiences.

☐ "Environmental literacy" is based upon an understanding of environmental concepts. To "understand" means not only to know the concepts but to be able to apply them.

☐ The entire school system, formal and nonformal, from early childhood education to continuing adult education, must be the target.

☐ Environmental concepts are introduced in elementary education. They are applied to increasingly complex problems in the later grades. A fifth grader might deal with an aquarium as a closed system, a 12th grader with a spaceship and graduate students might choose to deal with the earth itself.

☐ It is student based and is concerned with those environmental problems troubling students.

☐ It considers the questioning and adequately trained teacher as the most important factor in education, rather than relying on "teaching-oriented" material, or educational technology and machines.

☐ Curriculum material should be produced by teachers and students and relate to active participation in the solution, resolution or acceleration of perceived environmental problems.

The Office of Education pledges you full support in your great endeavor to highlight one of the most pressing environmental problems of our society. We intend to assist school systems, colleges, universities and other groups in addressing population aspects of environmental education, and we will be working intensively with the HEW intra-agency task force on population education in defining agency approaches to this problem.

A Scientist's View of Man's Alternatives in Dealing With the Problem of Runaway Population

William D. McElroy
Chancellor
University of California, San Diego
(formerly Director, National Science Foundation)

I start my discussion with a feeling that I am talking to a convinced audience. You probably know more about the problem of population than I. But I will try to emphasize some of the things which we could be doing or which we are not doing very well.

I think it is clear that we need much more biomedical research in terms of developing new instruments which would be capable of controlling population. We are now also aware that population problems involve more than just the pill, but there are major social, biological, psychological, economic, political and demographic problems that have not been discussed enough among the public sectors and in the school systems. People are still too timid about discussing the problems of population control, and we are not being vigorous enough in getting the facts out on what needs to be done.

From the biological viewpoint, from the time of Christ to at least 1870, there was a long lag in population growth. Then like any biological system, we reached a logarithmic growth rate. When you move at such a rate of growth, there are only a few things that can delay large increases: lack of food, pestilence and war. These are the classical corrective elements required to bring us out of a logarithmic rate of growth.

Experts debate the question of whether or not we can sustain this rate of growth. In the United States, which has 6 percent of the world's population and uses—some say—50 percent of the world's natural resources, we can probably afford a greater population in the short run. But when you approach this problem on a worldwide basis the situation is more critical. In the United States today, there is insufficient understanding of the significance of the problem. We cannot isolate ourselves with about 6 percent of the world's population while approximately 70 percent of the world's population lives at a subsistence or lower level.

Conferences like this one can be useful in presenting concepts like population education which can serve as a mechanism for convincing our country and the world that this problem has to be met and rapidly. There is no one approach to solve the population problem because it is a multifaceted question. We must organize and educate people at all levels—elementary, junior high, high school and college—and to do this we must influence the appropriate educational process in this country for a broad educational effort in population. We do not have the trained teachers in the schools who understand the demographic, social, political, economic and biomedical aspects of the problem. We need more research on the integration of the activities of various organizations concerned with population issues. We have heard a lot of talk over the last 15 years about the need, but now we must find a mechanism to initiate an action program across the country.

What should the federal response be? The National Institutes of Health of course over the years has been deeply concerned with the biomedical aspect. The National Science Foundation has in a modest way been active in the development of general curriculum materials for science. But the time has passed when we can allow ourselves to look at this as an experimental program. Teachers, administrators and curriculum supervisors must organize and develop a solid curriculum to communicate the population problem as well as methods of population control. By starting with the social sciences on the lower grade levels and going into the biomedical aspects in the high schools, a population program could be infused into the existing systems. In spite of the efforts of various independent groups such as Planned Parenthood and the Population Reference Bureau, we really have not been aggressive enough in pushing a complete revision of the curriculum to include the population aspect.

The NSF is prepared to respond to major proposals involving this kind of educational process. I would encourage you to organize and move vigorously to solve these problems. You should plan a conference including national educational leaders to study the kind of curriculum reform that is needed. Perhaps the following summer, you could request $15-$20 million to bring together and train teachers to implement the program.

In planning such an effort we normally talk about $100,000-type projects. But you should not think small. Perhaps we should really be talking about 20 to 100-million-dollar-type projects. Furthermore, there is no need to limit such an effort to the formal educational system. We must bring organized labor into this program, for example, because it is a major political force on the national scene. We must make a strong effort to pull the political forces together and to do this job in a unified fashion. We need an educational process which will affect the entire community, so that people will understand the consequences of population in 20-60 years from now. Hopefully once the problem is understood on a general level, we will be able to provide the solution.

The NSF will be responsive to the needs of educational programs in the population effort which we have been discussing at this meeting.

work group sessions

Population Education Via the Sciences

Lawrence Nilson
Weston High School
Weston, Massachusetts

Until recently, it would have been difficult to find the word population in any science text or other science curriculum material. Although population and environmental issues are now being injected into various curriculum areas, population issues are still considered almost exclusively in terms of long-term growth. In addition, the majority of articles published on population and environmental subjects in science teaching journals tend to communicate an "alarmist" or "crisis" attitude.

Today, the study of man and his environment is given a more central place in science curricula. Through questions related to the quality of life, how to live in a science-oriented society, and how to deal with the dehumanizing effects of technolo , students are encouraged to develop the intellectual resources necessary for choosing among alternative futures.

Population issues raised in science courses are generally considered as a basic aspect of broader environmental concerns. Teachers of these courses usually take a long-term, one-world view, or at most a two-world view (developed and developing). Too much emphasis is placed on the 21st century, and not enough on developing basic demographic skills and concepts or on present regional population trends such as differing growth rates, migration patterns, and changing racial and economic compositions. The interrelationship of population and environmental deterioration and population and social disintegration are rarely considered critically so that students' understanding of the complexities of population issues is not adequately developed.

A more scientific approach is needed, consistent with the broad goals of any science program. Students must be involved in the process of defining and assessing the population situation—on both worldwide and local levels—so they can determine the nature and extent of the

problems. In this way, students will be prepared to find possible avenues for resolving the problems. Some time should also be taken to view the questions in historical perspective emphasizing those aspects which are more clearly scientific or technological but certainly not limited to these.

This approach does not mean that the more social or value-oriented issues may not be considered, but that focus should be given where the resources of the teacher are most adequate. Consideration of the political and ethical sides of questions may be very fruitful but should be clearly labeled so that students realize that the teacher considers them important but perhaps not appropriate for extended focus in the science class.

The role of population studies in those sciences which involve the most students must first be explored; general science, earth science, life science, chemistry and physics, realizing that many new and exciting courses are evolving but usually only available to small numbers of students in the upper high school grades.

The opportunities for extensive consideration of population issues within physics and chemistry courses are usually limited. The long-term growth of population on a global level and especially in the highly technological and industrial areas can be offered, however, as important in considering the problems of mineral, water, air and energy resources. There is a definite need here for teachers and curriculum writers to understand demographic change and to use the available data critically and where appropriate in their focus on basic chemical and physical concepts. It seems that any basic population study, however, is much more appropriate in other sciences.

Earth science programs are rapidly becoming environmentally oriented so there is an opportunity to look at various aspects of population in relation to available resources on a global level and at regional levels. Total population, population density, population trends and lifestyles of populations are important topics for consideration. Man as a primary force in environmental change is basic to these programs. Exploration of the forces controlling our weather, surveys of soil types and quality, and studies of the oceans will all provide an essential basis for population/resource questions. A major goal would be to provide a conceptual basis, a framework in which to consider population/resource issues. This is important not only to a particular course but as a basis for in-depth discussions in other courses as well.

The most logical and presently the most involved area of science emphasizing population studies is life science. There are many entry points for exploring population dynamics but the most natural and probably the most meaningful approach for the students is through the study of the ecology of populations. After a foundation is formed, population issues could easily shape the entire life science curriculum. In the population/ecology framework, studies are made of animal populations and then a study is made of human population growth patterns. Graphs prepared by students are compared and discussed. The question of how and when man's population growth line will turn is an important focus. The main determinants of population density are discussed to see which

one will have the greatest effect on man. Students learn that natality, mortality, emigration, immigration, reproductive potential and environmental resistance are all basic to the ecology of populations. Man is seen as a unique animal, and men in different regions of the world may be affected differently.

So far the discussion has been aimed at questions of *content* for infusing into the existing sciences. Equally as important is the need to develop new *approaches* to learning, moving from teacher-centered approaches to student-centered classroom processes in which students are actively involved in and responsible for their own learning. This means that new materials and programs must develop activities and studies where there is coordinated choice, where students can move at different *rates* and to different *depths* as well as choose topics and areas of population studies which particularly interest them. This may present new problems for teachers since many learning situations will have to be established within one class. It will be difficult to assure that a good foundation in population dynamics is firmly laid so that individual learning experiences are not so broad that they are superficial. However difficult this approach may be, it is almost certain to be more constructive than a narrow approach where the teacher appears as the focus and the opportunities for exploration appear to be closed.

Work Group Report

It is suggested that all programs of population/environment education begin with the development of some general, overarching conceptual scheme, developed within the local educational system and tailored to its needs. Such a scheme would avoid the piecemeal, spotty and inadequate coverage that population-related concepts usually receive. It would provide instead a holistic approach in which discussions of population and environmental problems would be firmly rooted in the several science and social science disciplines. Infusion of population education into virtually all existing courses would be facilitated by the ease with which the practitioners of most disciplines could see the relevance of certain parts of the conceptual framework to material they are already teaching.

The basic learning scheme would serve as a guide for curriculum development in this area, while basic instructional objectives would be mapped out for the achievement of specific learning experiences. It is hoped that the overall framework would not restrict the development and use of varying teaching strategies and approaches. Broad, problem-centered approaches, as well as more content-oriented activities, would be compatible with its purposes.

In the development or adoption of such an overall scheme, and in the subsequent phases of curricular development in the population/environment area, one should seek wide participation by teachers, supervisors, administrators and students. The participation of cores of teachers from specific schools would be an important factor in the suc-

cess of such programs. In-service training workshops and summer institutes would focus on specific aspects of curriculum development as well as education in disciplines directly related to population and environmental education.

To help teachers and curriculum developers in various science areas build approaches which are sound and which are likely to be significant to the students, a few recommendations are given. Although they are written to satisfy the needs of teachers using a disciplinary approach, nearly all of them will be crucial for a science teacher participating in a multidisciplinary approach or in a broad problem-centered approach to learning.

- ☐ Basic models should be developed and shared. Alternative approaches should be considered, adopted and modified to fit a teacher's particular situation. (Many of the following suggestions include types of materials which can be selected, modified and used in a wide variety of settings.)
- ☐ Basic readings should be selected and special essays written representing a variety of, and even contrasting, points of view. These must be carefully selected on the basis of relevance, reading level, length and attractiveness. Reading guide sheets and general questions for discussion would be helpful and should be included.
- ☐ All bibliographies should be *annotated* and written in relation to the separate disciplines and grade levels: 7-8, 9-10 and 11-12.
- ☐ Attractive visuals must be created; films, film loops, filmstrips, overheads and charts must be developed. Most of these can be general enough to be used in several discipline areas and with a fairly wide range of age groups.
- ☐ All lists of audiovisuals must be *annotated* and written in relation to the separate disciplines and grade levels.
- ☐ Case studies of populations need to be developed. The form would be for teacher-directed inquiry studies and for student self-studies (semiprogrammed).
  Examples:
  a. animal population studies
  b. country profiles
  c. population profiles of certain groups
  d. effect of war, disease, etc. on population growth
- ☐ A number of invitations for class and individual action projects need to be developed. These could be printed on file cards (4 x 6 or 5 x 8) and used directly or rewritten for a teacher's particular teaching situation. These invitations to explore certain areas of population studies would contain an introduction to the topic, some leading questions and some approaches and resources useful in working toward a solution.
- ☐ Attractive and educationally sound games about populations, popula-

tion/environment issues, population/political issues and other areas need to be developed.

- ☐ Basic "packages" need to be developed which focus on quantitative demography. These would help develop a single concept within one class period and could be used with a minimum of teacher help. Examples include: "Understanding the World Population Data Sheet," "The Difference Between Two and Three," "The Difference Between Growth Rates of 2 percent and 3 percent," "Doubling Times —What They Mean and How They Are Calculated," "Age Structure— Its Importance," "Birth Rates, Death Rates and Growth Rates."
- ☐ Survey "tests" are needed to find out where students are—knowledge, skills, attitudes and opinions—both before and after a study of population dynamics.
- ☐ Science teachers need in-service or summer institutes in population studies. Areas of focus would be: basic demography and population dynamics, approaches to population studies, help in developing new inquiry and discussion skills, selecting good references and readings, general curriculum materials and some basic education in other disciplines such as sociology, political science and economics.
- ☐ Workshop and curriculum development funds should be given to groups of teachers in area schools to develop approaches and materials. These may or *may not* be under regional programs set up at key universities. The university programs could serve as centers for basic curriculum development and also as resource centers for materials and curriculum development assistance.
- ☐ More effective avenues of communication need to be developed in all areas of population education. A newsletter might be distributed to communicate to teachers, administrators and curriculum supervisors various population education activities including curriculum developments.
- ☐ Professional associations representing science teachers are requested to prepare statements and guidelines for population education reflecting their views and concerns.

Population education is almost unique in its value-sensitivity. Therefore it must never be forgotten that any purely cognitive and conceptual framework represents only one part of what must be achieved by population education. At the same time one cannot in general impart values or answers to value questions by direct inculcation or indoctrination. It is suggested that the most desirable and most fruitful approach is to seek to supply the student with the necessary cognitive tools and inquiry skills, without seeking to supply ready-made answers or expecting that all questions raised will culminate in consensus. It was felt that within this statement of purpose lies the best answer to the problem of the differing values and population/environment-related viewpoints that might be brought to the classroom by members of different ethnic, religious or socioeconomic groups.

Population Education Through the Social Studies

Byron G. Massialas
Department of Social Studies Education
Florida State University

The purpose, domain and method of population education

For this paper, population education is defined as the teaching and learning of reliable knowledge about the nature of human populations and the natural and human consequences of population change. The main purpose of population education is to help the individual make rational decisions about population matters as a member of his family and community utilizing appropriate information sources and inquiry skills. The means of population education is through the reflective use of curricular materials and instructional methods developed by teachers and field specialists.

Curriculum approaches

There are at least three ways in which population education can be introduced into the formal school curriculum: (a) the "program infusion" approach, (b) the "unit of study" approach and (c) the "separate course" approach.

a. The program infusion approach seeks to supplement and strengthen the existing curriculum with regard to its treatment of population matters. This approach does not require a major reconstruction of the curriculum; rather it builds upon or extends major topics already available in a course of studies. Assume, for example, that we want to apply this approach to the eighth grade social studies course taught in American schools. Traditionally the course offered at that level has been American history. We may develop what we call "population episodes" which may be used for program infusion purposes. A population episode is a brief unit of study which focuses on an important population topic and interconnects, conceptually, with a traditional topic in a given subject. An episode has both pupil and teacher components and may include

documentary, narrative and audiovisual material as well as pupil exercises and classroom games. Normally, an episode should not exceed 25 pages of printed material and should not consume more than a week of classroom time (one class period per day). The material will generally include springboards for stimulating discussion coupled with original population data. Through a series of questions, the material will give students and their teachers the opportunity to explore different means to the solution of population problems.

b. The unit of study approach seeks to strengthen the population education component through certain changes in the organization and sequence of the curriculum. It differs from the previous approach in that such a unit is not directly connected with other traditional topics although it is presented within the general context of a curriculum content area, e.g., social studies, the humanities, science, etc. A unit as contrasted with an episode focuses on fairly broad topical or issue areas. A unit of study is conceptually independent and assumes no prior knowledge of the ideas or issues discussed in it. It may incorporate a wide range of materials and media as in the case of a population episode, but it provides for a sustained analysis and discussion period of no less than five or six weeks. The unit approach is in line with a recent educational development to build a program of studies as a series of instructional modules or "mini courses." Presumably a unit of study can be matched with a mini course.

There are different ways of organizing study units and mini courses around population concepts. One is to identify and delimit segments of society and relate them to important ideas on population. Thus one may begin to develop curriculum units which are given such titles as "Population and Economic Organization," "Population and Social Structure," "Population and the Political System," "Population and Organized Religion," " Population and Artistic Developments," etc. For example, a study unit on population and the political process can be based on the substantive areas touched upon by Myron Weiner in a recent publication.[1] As developed by Weiner, the material may generate hypotheses on the relationship between dramatic or long-range changes in the age structure of a given population (brought about by an increase or decrease in the death or birth rates and by migrations) and the direction, sequence, tempo and force of demands made on a political system by different interest groups. The basic proposition that Weiner advances is that political decisions as well as the structure under which decisions are made are interrelated with the population trends in a country. The task of the one who studies these interrelationships is to examine them carefully in the light of the available data and in the process to identify other factors that might be relevant. The Weiner material provides many thoughful ideas about the political consequences of population change

[1] Myron Weiner, "Political Demography: An Inquiry into the Political Consequences of Population Change," *Rapid Population Growth: Consequences and Policy Implications*, ed. Roger Revelle, Baltimore: The Johns Hopkins Press, 1971.

and may form the core subject around which a study unit for use in elementary or secondary schools could develop.

An example of a series of multimedia units designed for use in the high school is a published program entitled, "World History Through Inquiry."[2] Drawing from several disciplines and in the context of world history and cultures, each unit in the program focuses on different aspects of society and provides a variety of printed and visual materials for students to examine and discuss. A unit entitled, *Man and His Environment* is of particular interest to us since it relates more directly than the other units to population education. The unit has seven exercises, one of which begins with a map game. Students are given maps of "Bonaria" showing climate, natural vegetation, minerals and land forms and are asked such questions as:

If Bonaria were inhabited by (a) hunters, (b) herders, (c) farmers, (d) industrial people,

1. Where would each group be most likely to live?
2. What might happen if hunters moved to the area first and then herders came? Then farmers? Then the industrial group? What would the pattern of settlement be if all the groups tried to live in the area at the same time?

The same exercise contains five case studies of population movements—of the Semang (hunters and gatherers), the Turkmen (nomads), the inhabitants of Easter Island, the forced exchange of population between India and Pakistan and migratory workers from southern Europe. The case studies provide the opportunity for the students to test and further define the hypotheses generated in the map game on the settlement of Bonaria. These hypotheses aim at explaining why people move from one place to another and at establishing some of the social consequences of such movements.

A unit such as the one mentioned above could be introduced in any social studies class in the high school. Since it is not dependent on any single discipline for concepts and investigative methods, it can be used during any 6-week instructional period in the school year. This flexibility makes the use of units quite appropriate for schools which stress curriculum relevance attained through theme-related instruction and through the offering of multiple options (perhaps in the form of mini-courses).

c. The separate course approach should not be difficult to understand since much of what is known as formal education is based on this curriculum approach. If one were to look at the social studies curriculum, grades K-12, the separate course organization would become obvious. We have social studies as distinguished from reading, writing and arithmetic through the third grade. Beginning with the fourth grade the

[2] Byron G. Massialas and Jack Zevin, *World History Through Inquiry*, A Series of Nine Units, Chicago: Rand McNally & Company, 1969, 1970.

program becomes more focused on a particular discipline. A common pattern in social studies is as follows:

4th Grade	Geography (emphasis on the home state)
5th Grade	American History
6th Grade	Geography and World Cultures (emphasis on the Eastern Hemisphere)
7th Grade	State History (and/or geography)
8th Grade	American History
9th Grade	Civics
10th Grade	World History
11th Grade	U.S. History
12th Grade	U.S. Government (one semester) Problems of Democracy (one semester) Electives (in economics, sociology, specialized histories, etc.)

Due to the discipline-centered orientation of most national curricula, if we were to propose a separate course in population education, we would have to work within the framework of the prevailing pattern. A multidisciplinary course on this theme drawing from social sciences, biology, the humanities and the natural sciences placed outside any one school department would be virtually an impossibility given the basis upon which the curriculum has historically developed throughout the world.* A separate course within a subject matter area such as social studies, the humanities, science, etc. has more possibilities for being accepted. The difficulty here is that the present curriculum is quite crowded and to press for a new offering would entail displacement of another. We have many examples of such attempts during the 60's—most of them unsuccessful since the hegemony of historical subjects among classroom teachers still persists.

In spite of these contingencies, how could a separate course on population education be organized? There are certainly many forms that such a course can take depending, in large measure, on the organizer's background and point of view. Charles B. Nam, a colleague at Florida State University, has proposed a course on population which would include 12 general topics. A tentative outline of these topics is as follows:[3]

* This certainly does not exclude the possibility of a multidisciplinary course on population offered within the jurisdictional confines of a subject matter area.

[3] Charles B. Nam and Susan O. Gustavus, *Chapter Outlines for Textbook on Population: The Dynamics of Demographic Change*, mimeo, n.d.

Population: The Dynamics of Demographic Change

Chapter 1 — Overview of population trends

Determinants of Demographic Change

Chapter 2 — Variables in population change
Chapter 3 — Factors related to mortality trends
Chapter 4 — Factors related to fertility trends
Chapter 5 — Factors related to migration patterns

Elements of Demographic Structure

Chapter 6 — Population composition
Chapter 7 — Population distribution

Consequences of Demographic Change

Chapter 8 — Population changes and the family
Chapter 9 — Population changes and the educational system
Chapter 10 — Population changes and the economy
Chapter 11 — Population changes and the natural environment
Chapter 12 — Population changes and political development

It is obvious from the topics and subtopics listed above that a course based on this outline will focus primarily on demographic concepts but will also draw upon such related fields as economics, politics, education and geography. Certainly this outline will not satisfy those with biomedical or humanistic orientations but those interested in those perspectives could point to what they consider to be appropriate books and course outlines.*

Some observations about the three curriculum approaches sketched above might be useful here. It is conceivable that no one approach is the best since local educational conditions would vary. For a school district which bases its program on theme-related minicourses, the introduction of 6-week units of study might be the best alternative. Districts which have no plans for drastic curriculum change may view the introduction of population episodes in the context of the traditional organization to be the best approach. Finally, some schools or colleges in the United States or abroad which either have room in their curriculum for expansion or are open to course experimentation may use to advantage a semester or yearlong course on population. It is possible that a series of episodes or units organized on some logical or psychological principle could be drawn together to form a course on the subject of population. If this were the case, then the task of the classroom teacher and the curriculum

* Presumably a course could combine and "integrate" all these perspectives, the social-scientific, the biomedical and the humanistic. As yet, I have not come across a systematic effort to accomplish such an ambitious task.

planner in developing the material and placing it in the classroom might take a different form.

Use of springboards

Springboards are thought-provoking materials on a topic which motivate students into conducting an inquiry on the subject. Springboards are ordinarily used in the opening phases of discussion of a topic—their main function is to get the students involved and to generate relevant hypotheses or position statements.

Springboards introduced into the classroom can take many forms—documents, magazine articles, graphs, poems, maps, newspaper editorials, pictures and musical productions. We have already referred to a series of unidentified maps on "Bonaria" which are intended to be used as springboards to stimulate discussion on causes and consequences of population movements. In another situation we presented to a class charts which showed birth and death rates in four different but unidentified countries over a period of 70 years. Given an inquiring posture represented by the teacher who introduced this springboard, the students became quite involved in trying to figure out from limited information how birth and death rates can be used to understand events in a country's history.[1]

Statements which present opposing or incompatible positions or interpretations form excellent classroom springboards. For example, the teacher may ask students to read two articles on population and world power: for instance, one written by Colin Clark and the other by Kingsley Davis.[2] The Clark article argues that population means power, and it offers some statistical data to support that position. The Kingsley Davis article suggests a more complicated relationship between population and national power than ordinarily is assumed and points to some factors that may make a substantial difference in determining that relationship—"1) the relation of population to resources; 2) the state of mortality and morbidity; 3) the level of fertility; 4) the age structure; 5) the rate of internal migration; 6) the degree of urbanization." Given a supportive psychological climate this springboard should elicit a number of hypotheses and positions from the students some of which may depart from those advanced by the two authors. This exercise can also demonstrate how disagreements exist in any field of endeavor and point to the need to exercise independent judgment based on logic and reliable evidence. The need to secure additional data which are relevant and up-to-date should become obvious.

Springboards can take the form of a series of hypotheses which are introduced for purposes of classroom investigation. Here is an example

[1] The springboard as well as the actual classroom dialogue that followed are given in Byron G. Massialas and Jack Zevin, *Creative Encounters in the Classroom: Teaching and Learning Through Discovery*, New York: John Wiley & Sons, 1967, pp. 106-124.

[2] Colin Clark, "World Power and Population," *National Review*, May 20, 1969, pp. 481-484. Kingsley Davis, "Population and Power in the Free World," *Population and World Politics*, ed. by Philip Hauser, Glencoe, Ill.: The Free Press, 1958, pp. 193-213.

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of three provocative propositions taken from the Weiner article previously mentioned:

> " 'as population continues to increase more rapidly than ability to satisfy needs and desires, political unrest, perhaps leading to the violent overthrow of existing governments, becomes almost inevitable.' " (Quoting Harold Dorn.)
>
> "... if one ethnic group in a society has a higher population growth rate than another, there may be a change in the distribution of power even if there are no accompanying economic changes."
>
> "... modern revolutionary movements are associated with an increase in the number of young adults."

Given this initial stimulus, the task of the class is to ascertain the validity of the hypotheses. This involves a conscious effort to clarify the meaning of the key concepts and to gather relevant data which support, reject or modify the original propositions. In many cases the students may conclude that there is not adequate evidence within their reach to ascertain the validity of the hypotheses.

Springboards may present a population issue which is highly controversial. A controversial issue is a component of a larger social problem in which the individual is personally involved. Controversial items when presented in the spirit of inquiry form excellent springboards—they generate wide classroom participation, they provide the opportunity to take positions on an issue drawing from personal resources, and they open up the way for value clarification. The educative use of controversy aims at airing important social concerns in the classroom and giving the intellectual and psychological capability to the individual student to form *defensible* positions on pressing social problems.

One does not need to search much for controversial material on population-related topics. The local newspaper provides a good source. The following constitute a small sample of titles of relevant articles that appeared in newspapers in Florida in a period of less than a month:

"On Male Patients: New Sterility Method Tested"
"Sterilization Urged for the Defective"
"Multiple Fathers Possible in France"
"Teenage Pregnancy and Suicide"

Controversial population issues can also be introduced in the form of brief statements. The statements or propositions below may serve a springboard purpose:[6]

- ☐ A married couple has the *right* to have as many children as it can afford.
- ☐ The government should control the dispensing of all birth control materials.

[6] Taken from a list on "Issues Related to Family Planning and Population Education" prepared by a group of participants in the Institute on Family Planning/Population Studies co-sponsored by Florida State and Florida A & M Universities in the Summer of 1971.

- ☐ Eliminating all unwanted pregnancies in the United States would bring about zero population growth.
- ☐ A married woman should be able to have an abortion without her husband's consent.
- ☐ Population control would cause the genocide of blacks.
- ☐ The communal life should be legalized.
- ☐ A woman should have complete choice over what happens to her body.
- ☐ Abortion should be permitted for married women but not for single women.
- ☐ Nobody ever dies of overpopulation.

The above are all challenging ideas the introduction of which would immediately elicit a great deal of heated discussion. After an initial exchange it would be the task of the teacher and the students to probe into the assumptions of these statements and see to what extent they are justified or not. A thorough examination of each topic should follow.

Springboards need not be confined to social studies materials only. They can be drawn from several fields of human endeavor including art, music and literature. As with the other springboards, the main question in collecting the material should be the extent to which it can be used to stimulate discussion on a population-related topic. For example, what notions of male and female roles in the family are conveyed in folksongs? What are their notions of children? Of procreation? What images of family in relation to society have folksongs conveyed over certain periods? Has there been a corresponding movement in other forms of artistic expression?

One may not have to go too far to get examples which are also part of the youth culture. Cat Stevens raises the issue when he sings,

> "Well, I think it's fine building jumbo planes or taking a ride on a cosmic train, switch on summer from a slot machine, yes get what you want to, if you want, 'cause you can get anything. I know we've come a long way, we're changing day to day, but tell me where do the children play."

Role of the classroom teacher

Throughout our work we have consistently rejected the idea of "population control" because it is antithetical to what we consider to be the proper role of the classroom teacher. To us, "teaching population control," implies that the teacher seeks to *indoctrinate* children and youth into accepting the idea of limiting the size of the population as the only solution to pressing social problems without providing the opportunity to inquire into other meaningful alternatives and the grounds upon which they are based. Education in contrast to indoctrination is the process of exploring and testing alternatives.

Instead of "population control," we opt for the concept "population education," a definition of which was given in the opening paragraph of this paper. In this context the teacher's major role is to legitimize issue-centered discussion and to encourage students to develop ideas and positions on population and publicly defend them. With this encouragement from the teachers, the students can become quite involved in exploring the various concepts and issues before them, and they hopefully will internalize the values of a community of scholars seeking to understand and explain their physical and human environments and take appropriate action.

Work Group Report

Social studies and humanities are among the several curriculum areas that have responsibility for the development of knowledge, skills and attitudes concerning population. Some progress has been made; however, much emphasis needs to be concentrated on improving what has already started. Considerably more effort needs to be directed toward clarifying the goals of population education, improving the quality of teacher preparation (both pre-service and in-service), developing procedures for implementing or infusing population studies into existing programs and developing procedures and instruments to measure cognitive growth and attitude change.

There was general consensus that alternative approaches to each of the above should be utilized. Success probably will depend upon the notion of orchestration rather than solo performances.

Ideas regarding introduction of population concepts, skills and attitudes may vary considerably. Expectations in terms of achievement levels are flexible. However, there appears to be consensus that many population education concepts may be introduced in beginning school programs. An early introduction of concepts would have the added advantage of being allied to the formative stages of attitudinal and value development that characterize the growth of preschool and primary grade children. Systematic trials in classrooms should contribute to more efficient and effective structuring of the population component into school curricula.

As an illustration of an expected level of accomplishment for a tenth grade student, it was suggested that he should understand a) the causes and consequences of changes in birth, death and migration rates; b) how families and nations plan for growth; c) the nature and availability of birth control information and techniques; and d) the impact of population density and distribution on sociopolitical and other factors. The level of understanding achieved by a student as a result of organized instruction needs to be appraised.

Issues were generated around the topic of what do teachers, both interested and disinterested, need to have to become active in teaching population education in their programs. 1) Clear, concise information including annotated bibliographies on population subjects should

be available. 2) Some organization or agency should prepare and distribute lists of available materials to the teacher as background information. 3) Student materials should be prepared with instructional suggestions useful for all levels of sophistication. 4) Teacher workshops should be organized, preferably within the school year, to provide informative and stimulating sessions for presentation and demonstration of materials. From these workshops, "springboard" type suggestions might lead to development of appropriate short-range provocative materials and teaching strategies. 5) Greater clarification of goals is needed to provide for continuance of existing programs with some modifications as are necessary. 6) To promote the need for population education, a publicity campaign might be organized for teachers and administrators. 7) An "award" system could be established for best materials in population education. (See models of the Joint Council on Economic Education and the National Council for Geographic Education.)

Longer range recommendations proposed by the work group included a compilation of a complete, current and analytic survey of available education programs* and materials; the funding of a school-service division to conduct workshops designed to teach teachers both content and teaching strategies; and publication of a regular newsletter to be distributed to teachers, administrators and supervisors.

Regardless of the availability of alternative teaching schemes, teacher's interest and enthusiasm must be stimulated in population/environment studies. Goals should be considered, but the need to be pragmatic and to develop ideas that are useful and meaningful in the classroom cannot be overemphasized.

* Illustrative Population Projects identified:

- ☐ University of Delaware Population Environment Curriculum Project. Grades K-12. Arnsdorf-Stegner
- ☐ Environmental Curriculum Guide for Middle Grades. Vaubel
- ☐ Longitudinal curriculum development, implementation and evaluation—three years for junior high school. (Overseas population curriculum project via the unit approach). Massialas
- ☐ Population studies for 12th grade. Problems of Democracy Unit. (Indiana University). Brown
- ☐ Population and Planning Program (emphasizing skill development and diagnostic testing) Grades 9-12. Bennett
- ☐ Population Profiles—a series of 13 units which are sponsored by Council of State Social Studies Specialists. Produced by Center for Information on America.

The Multidisciplinary Approach: How Can It Best Be Handled?

Population Education: Green Wheelbarrows or Red Fire Engines?

Noel-David Burleson
Carolina Population Center
University of North Carolina

Why is a fire engine red?

Why is a fire engine red? A newspaper is read, too. . . . Two and two are four. Four is one-third of twelve. Twelve inches make a ruler. Queen Mary was a ruler, Queen Mary was a ship, also. Ships sail in the sea. Fishes swim in the sea. Fishes have fins. The Finns fought the Russians. The Russians are called "Reds." A fire engine is always rushing, so it is red, too. . . .

—Anon

Today we are beset with the problems of population education beyond the *Why?, When?, What?* and *Where?* We are confused with the *How?* Specifically, many of us working in population education and others who have expressed some interest in working therein are asking, "The Multidisciplinary Approach: *How* Can It Best Be Handled?" The childhood explanation of why a fire engine is red is, to my mind, an exceptional effort at multidisciplinary elaboration. The color suggests the art disciplines. The newspaper represents journalism. Two and two illustrates mathematics. The 12 inches suggests surveying and geography. Queen Mary suggests political science and international relations. Ships illustrate navigation, fish and marine biology. Finns and Russians show

military science. And fire engines indicate emergency responses and social organization.

We are here as participants in a PRB Conference on Population Education, because we are convinced of the immediate need for the development of a universal population awareness among educators and students in both formal and informal systems. There is considerable consensus among us. Most of our disagreement on population education centers on the definition of the topic and the methodology by which we are to proceed. We already have several working definitions and I will not take the time to belabor the fine points of difference. Most emphatically, I believe that the definitions will be empirically derived, established by what is accomplished in a variety of cultural settings. Furthermore, I trust that we will not delay the action programs while we search for more consensus. . . .

There is no controversy about the multidisciplinary nature of population education. An understanding of 20th century population dynamics has been blatantly absent from most of our curricula, yet the explosions and implosions of many populations have presented enormous burdens upon health, education, economic, political, religious and other institutions. *How are we to proceed against these obstacles?*

To date, almost all of the work in population education has been oriented toward the infusion of population materials (including information on health, housing, jobs, schooling, government, resources, etc.) into traditional curricular vehicles. We are adding population awareness to civics, math, history, biology and ecology, home economics, health education, geography, sociology, psychology and agriculture. Only a few individuals have ventured to assert that the nature of the population education emergency is such that we need to establish immediately a new curricular vehicle; a vehicle of new courses throughout the educational system.

The arguments against the new vehicle approach are: school curricula are already overloaded; teachers do not have sufficient population knowledge to handle the subject; and, in many settings, the topic of population dynamics is too threatening because it is value-laden. The arguments in favor of developing a new series of courses seem to be: our population and environmental problems are sufficiently serious that an all-out reorientation is necessary to command the attention essential to ameliorate the already apparent damage caused by *homocentric* rather than *biocentric* behavior. Only by having a specific, dramatically identified, paneducational sequence of population courses will the necessary commitment be developed to respond to the population variables that otherwise get lost too easily in pop awareness math, pop awareness civics, pop/environmental awareness science courses, etc. *Relevancy* has been the most seriously lacking ingredient of traditional education. A new multidisciplinary, inquiry-oriented education will best serve in the revitalizing of education at the same time that it will foment critical attitudes for the pluralistic world that surrounds us.

At this juncture we have had some very fine old and new green wheel-

barrows in population education, and these conveyances have served us well. The simple technology of using wheelbarrows to carry around population education ideas and the simple methodology of planting the ideas in educational parks tilled by other educators has worked nicely for parklands. Wheelbarrows are famous for being non-polluters and the velocity at which they move is determined by how well the gardeners keep open and cared for the communication channels. Wheelbarrows are common in many cultures and their commonality assists diffusion.

"A fire engine is always rushing, so it is red, too . . ." The complex technology of a fire engine allows the firemen to respond to a wide variety of emergencies that gardeners cannot. Fire equipment and personnel are great for extinguishing fires, if the fires have not been allowed to get completely out of control. Fire equipment is also useful in responding to the needs of kittens and children stuck in trees. Fire equipment and personnel excite educees to emulate the firemen in helping people confront crisis. Heroics become the order of the day and, clearly the human condition with half to two-thirds being badly nourished, housed, educated, employed and created demand heroic response.

The multidisciplinary response: How can it best be handled?

In the whole world we have more crisis situations that require dramatic remedies than we have nice green parklands with few weeds and many lovely plants requiring additional nutrients. On the human balance sheet of population education methodology, we can say that with so many people already in desperate condition, "Why are we wasting our time? Let's get fire engines rushing into our schools to establish new fire escapes from the overcrowded habitats." On the bio-balance sheet, the master plan is not so clear and success may best be assured by putting each educational path in order, resulting in less pressure and greater long-term protection.

Our present dilemma can best be resolved by utilizing both green wheelbarrows and red fire engines. However, lest we get too comfortable with our tried and true wheelbarrows with the ever-so-comfortable handles, before we learn to drive the new fire engines, let me remind you of the advice from Mark Twain:

> *Behold, the fool saith, "Put not all thine eggs in the one basket"—which is but a manner of saying, "Scatter your money and your attention"; but the wise man saith, "Put all your eggs in the one basket and—WATCH THAT BASKET."*

Work Group Report: The Hidden Agenda

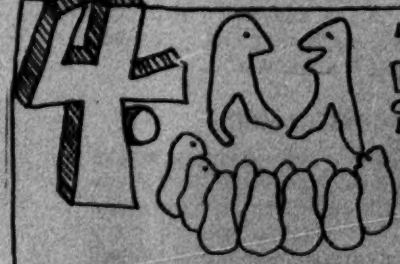
The comparative ease and the great appropriateness with which population education can be incorporated into traditional settings has confused its major proponents, and they have avoided the task of developing separate, multidisciplinary courses. The multidisciplinary and interdisciplinary approaches represented in our work group impelled us to

A LINE IS...

1.
THE SHORTEST DISTANCE BETWEEN 2 POINTS

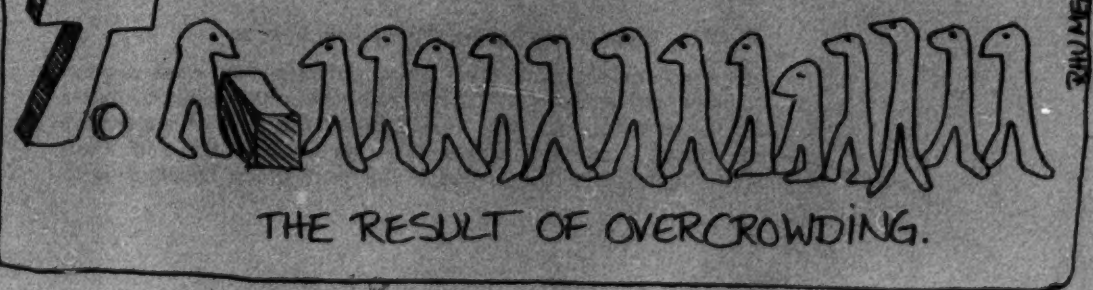
2. A PART OF A POEM.

3.
a rope To hang drying clothes on.

4. 
THE WORDS SAID IN A PLAY.

5. A LIE.

6.
A THIN CORD ON WHICH A FISH HOOK IS ATTACHED.

7. 
THE RESULT OF OVERCROWDING.

RHU MELUM 71

© The Population Institute, 1972
Artist: Rhu Melum, New York, New York

recognize that the time has come for infusionists to tie a large cord around the topical inputs and unitary inputs presently being used. In addition to population education efforts through the traditional curricula, we owe to vital education contributions of new course approaches. We all recognized that there are major disciplinary and administrative barriers to the acceptance of a new curriculum in already overloaded systems, but the urgency of the environmental/population problems and the multidisciplinary aspects of population topics in the last third of the 20th century are such that a newness is mandatory.

There are difficult changes involved in moving from trying to get teachers to infuse population awareness into math, civics, biology, home-ec, history and so forth, and to creating new credit units in the bookkeeping systems of our schools. Nevertheless, we concluded that we may well need five multidisciplinary courses: 1) a natural science-oriented course of *MAN AND HIS ENVIRONMENT* with inputs of population from social sciences; 2) an international social science-civics course with environmental and development education inputs; 3) an inner-city course on urban problems and population education; 4) a suburban, high-population-growth-of-the-middle-class-responsibility course; and 5) a rural (black-white-gray) economic deprivation ghetto course. The ground rules of each of these innovations have already been established, but no one has brought together a report for others concerned with developing their locally appropriate, multidisciplinary courses.

We have discovered that we do not have a "how best" response. Rather, we discussed in great detail the reality of a number of good approaches. It appears that an immediate need in this area is the publication of student and teacher study guides. This may be by means of the publications of materials, of model courses (mini and/or maxi) and of debate questions. Prior to understanding these efforts or simultaneous thereto, we need some kind of evaluation service of currently available items.

With these observations, it is now time to expose our agenda to this national Conference. We recommend that the educational programs of the groups brought together here should assist all of us as quickly as possible in implementing the five recommendations of the Manresa Declaration on Population Education:

- ☐ Make population education a subject of concern to your administration and organization.
- ☐ Commit funds to development of programs in population education at all levels of academic endeavor, both public and private.
- ☐ Support and sustain those who work in the field of population education.
- ☐ Actively seek means of enlisting all professional educators, governmental policymakers, religious leaders and civic leaders in a concern for population education and supportive legislation.
- ☐ Use mass communications media to convey the urgent need for population education to the public, enlisting these media as an

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essential part of the educational process itself *(Population Bulletin*, Vol. XXVI, No. 3).

In addition, the workshop recommends that a population education newsletter be written to provide current information on programs, materials, resources, methods and so forth; that the population education resource materials now available be organized and classified; that the possibility of establishing a speakers' bureau or at least a list of available resource agencies and persons be examined; that a survey be conducted of the cultural, political and educational constraints hindering the development of population education on national, regional, state and local levels. We propose that this service would assist those persons already interested in population education to expand their numbers by overcoming administrative and legislative barriers; and finally that organization of regional teacher training population education workshops by universities, schools, state offices of education and professional organizations be stimulated.

Teacher Training: How Can Teachers Learn Quickly What They Need to Know About Population?

Tom Collins
Director, Schools Program
Center for War/Peace Studies

Teachers teach what teachers know! Stated differently, teachers will teach that which interests them and what they feel reasonably competent in handling.

The task ahead—that of training hundreds of thousands of teachers to be interested in and competent with new data and viewpoints cutting across disciplinary lines—is a huge one. It looms large not only because most teachers currently do not have the necessary understanding of the content of population dynamics, but also because some teachers may have difficulty in handling the content in a professional and objective manner due to the involvement of their own values. Added to this is the fact that few of the student text materials now available provide any large measure of help to teachers.

It cannot be expected that massive teacher training will easily solve these problems. The schools and the recent national curriculum projects have had what can only be called a magical belief in teacher training. In reality, however, training in substantive ideas does not tidily resolve the problem of intellectual imprecision.[1] Teachers themselves are not directly to blame for this imprecision. Many are very capable, but the whole system, the whole "culture of the schools" is oriented in another direction. The work load does not permit the teacher to reflect, to read, to develop intellectual skills. In addition, the system provides little teacher

[1] Hanvey, Robert G., "The Social Studies, The Educational Culture, The State," *Confronting Curriculum Reform*, ed. Boston: Elliot W. Eisner, Little, Brown & Co. 1971.

evaluation; no adequate feedback mechanism exists so that teachers' "misinterpretation" of information in the classroom can be corrected. This lack is a serious one, particularly when we focus on population information. Few areas of academic concern contain as many myths and social biases.

Given these problems inherent in the culture of the schools and realizing that traditional teacher training methods probably cannot assure responsible and effective handling of population content, what suggestions can be made?

An analysis by Robert Hanvey, Curriculum Director of the Anthropology Curriculum Study Project, one of the first social science projects supported by the National Science Foundation, offers several insights. This project found that even with highly recommended teachers, there was often a serious lack of precision in the handling of ideas. This might suggest that the problem was a lack of formal training in anthropology. Surprisingly, however, it was the students taught by the teachers not trained in anthropology who did generally better than those taught by teachers who had received formal training. After a few years, another pattern emerged; many teachers were receptive to the materials, not because of a special interest in anthropology, but because of the inquiry orientation of the materials. Substantive ideas appeared to be less important than methods.[2] The experiences of a number of other social studies development projects would seem, at least on the surface, to substantiate Hanvey's findings.

These findings should alert us at the onset to the importance of the teaching method—as well as the content—in any new programs being developed to introduce population education.

The present emphasis on "inquiry" or "discovery" teaching—while not really so new an idea—has become a persuasive force throughout social studies education. For whatever reason, teachers do exhibit concern with inquiry strategies and techniques. To function in an inquiry manner, however, teachers must be able to move student explorations in directions which may frequently produce unpredictable outcomes. Unfortunately, both inside the classroom and out, Americans are not noted for tolerance of ambiguity.[3]

Teachers may have to learn to live without the security of visible closure and hard feedback if they are to use the essential elements of inquiry—suspended judgment, an attitude of searching and a spirit of discovery. They will need help in understanding the values of free inquiry. This kind of support can and should be an integral part of preparing teachers to handle population data and concepts. The skills of inquiry are especially appropriate for these teachers because the new subject of population is not yet one of hard facts and established cause-effect relationships; much is still at the conjectural stage. In addi-

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[2] Hanvey, *Op. cit.*, p. 148.

[3] La Force, Martin, "Why Inquiry Fails in the Classroom," *Social Education*, January 1970, p. 67.

tion, values are inherent in this subject area, and teachers should be skilled in inquiry strategies designed to help students begin to clarify their own values—not merely accept those of the teacher.

In-service education

Two major means exist for educating teachers, i.e., pre-service courses and in-service activities. Because the greater task is the latter, it seems wise to spend time on in-service efforts first.

Since it will be impossible to ever reach all teachers concerning population education, any strategy for educating them should focus on those teachers and administrators within a school system who might provide a range of competency to that system. The involvement of key administrators—principals, curriculum supervisors, etc.—is important for two reasons: first, they are in a position to motivate as well as legitimize the new subject area for all the teachers working in their schools or department areas; second, if the administrators themselves are knowledgeable about both the content and methods of population education, more and better support, supervision and evaluation can result.

In dealing with the most productive organization of in-service workshops, the following specific questions should be considered:

What period of time is required to minimally equip a teacher with the essential information and skills? Keeping teachers out of their classes for training sessions during their paid workweek undoubtedly presents difficulties. However, in spite of any difficulties the potential pay-off is increased teacher enthusiasm, and interest generated by holding in-service education activities during the paid workweek makes such programs worth doing. Coupled with this is the fact that in-service activities held during school hours take on a much greater sense of importance to the teachers. Under the best of conditions it is unreasonable to expect most schools to provide more than 2 or 3 days for in-service activities. This is probably adequate time for beginning the motivation process, but certainly not sufficient time for the learning of basic population content or for focusing on a range of useful classroom methods and techniques. Given this reality, two other approaches have been tried.

The Urban Life-Population Education Institute in Baltimore devoted 3 full days to the "turning on" of teachers. At the concluding session, when the majority were actually excited over the population issue and anxious to emphasize it through their existing courses, they clearly realized their own lack of preparation and knowledge of classroom materials to develop follow-through. The second model is the National Science Foundation sponsored 4-week summer Conference on the Population Explosion held at the University of Cincinnati. Through both the application and selection procedures, it was assured that participants would already be motivated to teach population dynamics. The full 4 weeks were devoted to equipping these teachers with an adequate background

in the relevant demographic, economic, social-psychological, medical and biological concepts to at least give them a good grasp of content. This is not enough. Without adequate time devoted to methods for communicating this knowledge to students and the appropriate materials—teachers simply are not adequately trained.

For meeting objectives beyond mere motivation, another model exists which might be considered. A series of short workshops could be offered for teachers in one geographic area. This model has been used by the American Association for the Advancement of Science in its NSF Chatauqua Type Short Courses, one of which is devoted to population. The typical pattern for each class is that the participants will meet at one of the 12 field centers for an initial two days of lectures, demonstrations, discussions and preparation for individual work study, research or other activity to be carried out between that time and the second session. A modification of this model useful for educating secondary school teachers might be an initial 2-week session at the end of the summer to excite the teachers and to begin to provide an adequate content background. An assignment to design and test a pilot unit or to test already available materials could be made over a period of 2 or 3 months after which a second session and possibly a third could resume to discuss and compare teaching techniques. Many other approaches have, of course, also been successfully used to introduce teachers to new subject matter.

What is the optimum distribution of time available for in-service education to consider substance? teaching methods? classroom materials? Successful teaching certainly blends at least three major elements, i.e., 1) knowledge of the subject matter, 2) ability to convey the material to the students (methods) and, 3) having available the necessary materials. In addition, the teacher must be sufficiently motivated to teach a particular topic or subject. Hopefully, in relation to population concerns, teachers will reflect the growing public awareness of the seriousness of the matter and little time will have to be devoted to convincing them. Indications are that this is now the case. On the other hand, the problem of striking a useful balance between substance, teaching methods and a familiarity with the available teaching materials remains. None of the groups attempting to introduce new materials into the present curriculum have satisfactorily resolved this issue. However, we do know that teachers desire help in all three of these areas. How to most effectively organize in-service activities to provide adequate assistance in all three areas remains a central concern.

What are the advantages or disadvantages of national, regional and local workshops? How can teachers and administrators be most efficiently grouped in order to assure adequate support, feed back and evaluation? The whole question of time periods impinges closely on the question concerning the advantages of training sessions open to nation-wide participation and those open to regional, state or local participation.

A program attracting a nationwide constituency—and most NSF

workshops are designed to do just that—is an appropriate mechanism for capitalizing on the interest of previously motivated teachers who are already potentially a part of this population education innovation. The nationwide program is probably not the best mechanism for widespread and efficient diffusion of this innovation nor for sensitizing large numbers of teachers to the most relevant concepts and the most effective teaching methods for their own local areas.

One approach, in addition to the Chatauqua model, suitable for solving these drawbacks deserves attention. Could not workshops prepare teams of teachers and administrators—cadres of individuals—who have the competencies to bring about systematic curricular change? Teams could consist of three or four teachers from the same building within a school system, a change-empowered administrator from that building (e.g., a principal or a department head), a curriculum supervisor from the school district, and possibly even a college level instructor who possesses a serious concern for precollegiate education.

The School of Education at the University of North Carolina (Chapel Hill) has just recently used this approach in the area of high school sociology. Working under the direction of the National Sociological Resources for Secondary Schools Project, a workshop there was planned for two phases: 1) an intensive 3-week workshop at the end of the summer and 2) a series of follow-up workshops and training experiences through the academic year. For rapid diffusion purposes this approach has the distinct advantage of developing a cadre of teachers and other educators trained to serve as resources in their home districts and regions. However, this program model involves considerable expense.

An additional advantage of this model is that participating teams will pay particular attention to specific problems existing in their local areas. Depending on whether teams come from rural, suburban or urban school systems, the focus, the materials and the techniques may vary. Depending on the relative receptivity of administrators and community members in their own areas, the strategies adopted for implementation and further diffusion will probably differ, too.

Another approach used to educate teachers with a specific curriculum project and specific materials in mind should also be considered. This method has been used, both with team participation and individual participation. This past summer the National Science Foundation Leadership Training Workshop at the University of Colorado offered extensive training in four specific curriculum projects: Anthropology Curriculum Study Project; Econ 12; High School Geography Project; and Sociological Resources for Secondary Schools. Heavy emphasis was placed on implementation of the four curriculum projects in the schools of the seven cities represented. With this objective, selection criteria for teams could include the degree of willingness of a city to implement the packages in a specified number of classes and the financial commitment of the school system to aid in the implementation of the new materials.

An additional advantage of including administrators and/or curriculum supervisors in the team approach to curricular change is that no

program is likely to attract sustained funding without being able to show results. Evaluation is needed to do this and sympathetic administrators or other key decision makers are central to this effort. Individual teachers, no matter how influential, are not likely to be able to obtain the necessary inter- or intraschool cooperation necessary to set up control groups or other measures necessary to ensure adequate evaluation being carried out.

What are the potential sources of financial support at different levels? The whole matter of financial commitments and funding is crucial. Certainly limited money for population education efforts may be available at the local level and, where it does exist, it is usually in the private sector—often from environmental and population interest groups. Two rather successful workshops, one involving 30 teachers from one city, and the other involving hundreds of teachers from one state, have been the result of cooperative efforts of school systems and universities working alongside and with financial support from organizations like Planned Parenthood, Zero Population Growth, Sierra Club, Population Dynamics, etc.

Realistically, however, if we hope to reach teachers on a massive scale, money must be made available from the federal government or large foundation sources channeled through the state, county and city education systems to guarantee adequate local training opportunities.

In concluding these suggestions for in-service education of teachers, a multitude of other possibilities should not be overlooked. A newsletter could function productively to create awareness, and to keep teachers informed of the latest literature, teaching aids and education opportunities. Another mechanism which we might find useful, even if a bit cumbersome and expensive, is one involving teachers in a curriculum design project. Here, the expectation is that teachers will learn as they work. Education and material development are simultaneous objectives and processes which might be accomplished over one or two summer sessions. One model here is that of the Population Curriculum Study run at the University of Delaware during the summers of 1970 and 1971. The chief difficulty with this method is that it can only deal with a few teachers at a time.

Pre-service training

No attention has been given in this brief paper to what can be accomplished through the existing structures and budgets of undergraduate training in liberal arts and education departments in colleges and universities. Rather than discuss at length the advantages of reaching prospective teachers at this point in their careers or the advantages of possible approaches, it suffices to say simply that the following suggestions all offer real possibilities for implementation requiring a minimum of institutional remobilization or additional financial support:

- Undergraduate teacher candidates could be encouraged to take courses stressing issues of population dynamics offered in other departments, such as biology, sociology, public health, etc.

☐ A course within the department or school of education could be offered to cover important cultural problems of the day, one area of which would be rapid growth of population and the surrounding social, political, economic and psychological issues.

☐ Through the elementary and secondary level curriculum methods courses, interested students should be made aware of curriculum innovations which include population issues.

☐ In both general and specific disciplinary methods courses, students could be encouraged to design pilot inquiry units around ecological and population concepts.

☐ Education courses dealing with social and cultural change should foster increased awareness of population as a legitimate subject for exploration.

Such pre-service education of teachers is advantageous in two ways. First, they are still likely to be flexible concerning the particular issues they will choose to emphasize in their own classrooms. And, more importantly, the issues they do choose to teach about in their early teaching experiences tend to be emphasized by them throughout their teaching careers.

Work Group Report

Before entertaining the question of teacher training, it is necessary to examine the broad scope of population education and the agents which influence new direction for curriculum programs in our school systems. Teacher preparation programs serve to promote an understanding of the content of a given discipline and methods of teaching the content, but if this content material is not consistent with the accepted curriculum of the school system, the teacher can only integrate bits and pieces of this content into his or her classroom activities. Therefore, it is imperative that the total K-12 scope and sequence of population education be established by the population experts and educators. A population-related organization could coordinate the efforts of such a group and begin to develop population education guidelines for local school districts as well as colleges and universities.

The committee proposed the following three basic educational objectives important to the development of a population education framework for local school systems:

☐ Students should develop an awareness of ecology and an understanding of the consequences of changes in human population.

☐ Students should acquire an understanding of the relationships that exist between national development and the quality of life both in the short run and in the long run.

☐ Students should acquire an understanding of the consequences of individual decisions in the important area of reproductive behavior.

The committee recognized the need for a broad conceptual framework of population education as the conceptual framework will permit the producers of curriculum materials to develop appropriate grade level materials.

Both the framework and instructional materials are necessary to conduct in-service workshops for teachers. Summer workshops can be of four or six weeks duration and probably develop sufficient teacher competency to begin an instructional program in population education.

To make successful inroads on in-service programs, workshops should include a team of persons who can influence the acceptability and implementation of a population program. This team would be composed of an administrator, curriculum coordinator and teacher who would participate in workshops on population education. In this way, the administrator or whoever might have some political influence is informed of the direction of the population education program. This positive influence may in turn help to open the door so that the teacher does have freedom to be the population educator in the classroom.

This is pertinent because the administrator has the ultimate responsibility for the curriculum program that is used throughout the school.

Another in-service workshop approach could follow the NSF Chatauqua Type Short Courses. This model would begin with a 2-week intensive training program prior to the beginning of school in September. At the conclusion of the program teachers would be given population education instructional materials for use in their classroom. Teachers and students would use the materials during the school year and assist in the evaluation phase of the program. Teachers would convene every month or every other month to compare teaching techniques and provide data for the curriculum developers. This method ensures some feedback as to the success of the materials which will in the long run increase the efficiency and competency of population education materials.

The committee is aware that there is a short period of time to implement a program of population education but programs do begin in school in an informal manner as well as a formal one. The formal approach should involve many staff personnel from the college and school district as well as the population experts in the planning phase. Attention should be given to the focus of the overall population education effort including the methods and approaches to be used and the instructional materials which will be available to implement a comprehensive population education program into the curriculum.

The Time Horizon Problem in Population Education

Sloan R. Wayland
Teachers College
Columbia University

The time factor is present in any aspect of the school curriculum and can be viewed in reference to 1) the basic nature of the content of the particular subject area, and 2) the relationship of the individual learner to the content. For population education, both of these pose special problems for the curriculum developer. In order to facilitate the consideration of pedagogical strategies for dealing with the time horizon problems, each of these two aspects will be briefly analyzed.

Population as a time-based subject

Population as a field of study is essentially concerned with the interrelationships between certain vital processes broadly defined and the socio-cultural context in which these vital processes occur. In the very nature of the case, time is a central factor in the vital processes whether considered in terms of an individual or a cohort. The individual is born and reaches puberty in 12 to 15 years. For the female, the reproductive period lasts for 30 to 35 years, and death for some may occur anytime within about 100 years after birth. For a society the population characteristics at any point in time are the resultants of a large number of events many of which occurred many decades ago. The low birth rates of the 1930s and the high rates of the 1950s will be visible in some degree for at least another 100 years.

In view of these factors, the minimum time unit in which to think about many changes in population characteristics is a decade, and for most purposes at least several decades is a more relevant time frame. Sociocultural factors may intervene to modify the time frame in some

degree, but the population processes have a dynamics of their own. For example, a society such as the Philippines in which nearly one-half of the population is under 16 years of age will continue to be a young society for generations even with a significant reduction in the birth rate.

A special aspect of the time frame which poses a problem for population education is the arbitrary and ambiguous character of some of the basic concepts and indexes which are conventionally employed in population studies. This is not the result of poor scholarship but is inherent in the measurement of vital processes in human or nonhuman life. For example, measures of the quantities of births and deaths, and of the magnitude of increases in population which are conventionally used, are imprecise, and usually involve a number of assumptions. In rates or ratios, the numerators pose some problems, but the selection of the appropriate denominators is even more difficult. The arbitrary aspect of the most widely used formula for birth and death rates is indicated by referring to them as "crude birth rates" or "crude death rates." Even more refined measures which attempt to take into account certain structural features of a population still retain some arbitrary assumptions.

The time frame for the student

Our focus of attention is on the secondary school student and in the normal patterns of progression through the school system; the students would usually be in the age span of 12 through 18. This would cover the period from pre- or early puberty to the point where our society sanctions but does not fully support marriage and reproduction.

As a means of pinpointing the problem of time horizon, some of the potential actions of the individual learner in relation to population matters may be identified. If the focus is on future reproductive behavior, the following become relevant data: age of marriage or functional equivalent, age of parents at birth of the first child, spacing between children and number of live births. For most students all of these occur subsequent to the secondary school age period even though for some, reproduction begins before secondary school is completed. In our society, this series of actions typically occur over a 30-year period after the completion of secondary school.

In population education as in other areas, the pedagogical problem involves the specification of immediate behavioral goals as well as longer-range goals. These goals include both the attitude and behavior of the individual which have population consequences as well as the civic actions of individuals in reference to population policies and programs.

Pedagogical approaches to the time horizon problem

The specific approaches to be used in recognition of the time problems referred to above cannot be considered in detail since this problem will need to be attended to in the context of a curriculum design which deals with many other issues. The following general comments may serve as

a point of departure as the larger curriculum problems are considered. These comments are divided in two parts in keeping with the two types of time problems noted above.

A. Long-range nature of population changes:

- ☐ Population factors should be included as appropriate in the courses in American and world history where a sense of time is essential.
- ☐ Community or state population characteristics could be studied in which the patterns over several past decades could be included as well as efforts at projecting changes for the future. These exercises would serve many purposes including a sense of time factors.
- ☐ Examination of the population structures of selected countries which are at different stages in their patterns of change. By using the concept of demographic transition or some other concept, the dynamics over time may be illustrated through the use of comparative and relatively contemporary data.
- ☐ The problems involved in interpreting popularly used measures of population characteristics can be explored to assist the student in handling references to population in newspapers, magazines and other public media. In the process, the student should gain a better sense of the time factors in population analysis and change.
- ☐ Specific attention to the growth of the black population in the United States will help to gain a sense of the time horizon and will in addition provide a base out of which to consider the responses of blacks to the current concern with population matters.

B. The individual learner in relation to population:

- ☐ Assist the student to identify the types of decisions which he will make in the future which will have population consequences and then examine the factors to be taken into account in such decisions. For example, what are the personal, familial and societal factors to be considered in decisions concerning the number of children which the student will eventually have?
- ☐ Assist the student to appreciate the points in his current and future life in which population characteristics of his community or the nation may impinge on him.
- ☐ The meaning of time horizons may be difficult to convey in one domain alone. If the instruction in history and in other subject areas is effective, a generalized sense of time may be developed and assist the student to gain a time perspective on population problems.

Work Group Report

Two main facets of the time horizon problem in population education were considered by the work group: 1) How do we perceive the problem and 2) What approaches might be taken to cope with the problem.

The nature of the problem

Population is by its very nature a time-based subject, involving as it does the vital processes of individuals and cohorts. Population projections are necessarily based on present figures and perceivable trends, resulting in some ambiguity in these projections. Perhaps we need to develop approaches to population education which will not be strictly demographic.

Both immediate and long-range goals of population education should be specified, in terms of the attitudes and behavior of the individual which have population consequences and of the civic actions of individuals with reference to population policies and programs.

The rewards of present behavior related to population issues involve a serious time lag. Recognizing that school systems are constantly dealing with future behavior, but that this now includes a pedagogic strategy of short-term goals and immediate feedback, how do we deal with the specific problem of population where the future is more long range? Moral development and internal control are presumably factors in a person's ability to cope with an uncertain future. Finding ways to bolster such development and control in students should help them in the process of decision making regarding population as well as other problems they will inevitably face.

Internationally, and within the United States, there are differences among various groups in their perceptions of time. Great differences exist, for example, between members of industrial and of preindustrial societies in their sense of time and perhaps less dramatic but very real differences among various subgroups of the U.S. population.

At least four subgroups may be identified among U.S. young people: (1) the Now generation, with its contemporary orientation; (2) traditional youth, who believe that each step in their lives will follow more or less faithfully a culturally prescribed pattern; (3) those aware primarily of their relative deprivation and concerned with immediate gains, not long-term goals; and (4) those able to look ahead, confident of their competence to deal with the future, though not able to predict it. Different population education materials and strategies may be needed to work with these different groups.

Approaches to the problem

We might attempt to develop a time sense in students initially by considering recent personal choices that are having and will soon have certain short-term effects. The time span and the level of decision making for this activity could be gradually increased. Personal, nonfamilial, school and community decisions could be studied along with

alternative presents and futures given different decisions in the past. The inexorable consequences of certain events fixed in time could be traced by students, e.g., predator and prey population swings, or the effects of Ireland's potato famine in terms of personal behavior changes and resulting demographic changes. In population, this study should lead the student to an awareness that certain constraints on present decision making are built-in; for example, that parents of the period 15 years hence are already living.

It would be useful to make the time element relatively immediate to students, rather than threaten them with standing-room-only projections or population doubling times; kinship relations might be used, with family time lines going backward and forward two generations. The concept of past time in terms of "parents ago" might also be helpful in this respect.

The time orientations of different disciplines are widely different; e.g., biology speaks in eons; history in tens, hundreds or thousands of years; demography tries to look into the future; other social sciences may depend on equilibrium to take care of the future. Nevertheless, we look to other disciplines to assist in building a time sense in students. Area studies may help to develop this time sense as they consider development plans of a specific duration and demographic trends unlike our own.

Elements to which population education should give attention include: 1) personal decisions—lifestyle, reproductive and migratory behavior, etc.; 2) population density and distribution, living space, public policy and cumulative consequences of choices; 3) age composition consequences and necessary institutional adjustments; 4) the relationship of our society to the rest of the world—the declining numerical significance of the U.S. population; 5) non-population decisions that have population effects, such as age at marriage, age at leaving school, the status of women, employment, etc.; 6) the ripple effect through time of abrupt population changes, and the resulting needs of certain cohorts at various stages of life; and 7) the effects of a reproduction rate reduced to the replacement level. (Family planning and birth control education are not basic elements of population education. However, they may have to be dealt with under that heading if they are not available elsewhere in a curriculum.)

Techniques of population education might include development of exercises that dramatize certain dimensions of the population picture or simple games. Teaching of population education in schools should be reinforced and followed up by out-of-school education, such as media messages.

We believe that the study of population is valid in itself as an important field of knowledge, that it need not become a separate discipline, and that its study should mean that students when they come later to decisions that will affect reproduction will at least consider that there are questions to be asked about those decisions and will have tools to make intelligent inquiry.

Research agenda

A partial research agenda for developing knowledge and awareness of some of the problems of time horizon in relation to population issues would include 1) a review of the literature on children's concepts of time at various developmental levels; 2) the inherent maturation process of adolescents (in relation to their view of their own ability to control events) and the effect of cultural differences on this process; 3) the effect of practice in considering consequences of past decisions and projecting consequences of present situations on one's ability to see and plan ahead in real life situations; 4) a list of existing resources dealing with extension of time horizons of students; and 5) studies of children in families of varying sizes.

Research and Evaluation Concerning Population Education: What Do We Need to Know to Design Good Programs? How Can We Tell Whether We Are Accomplishing Anything?*

Stephen Viederman
Assistant Director, Demographic Division
The Population Council

Research on a broad range of topics is a high priority if population education is to develop expeditiously and rationally. The needs may best be described under four headings.

First, there is the knowledge base upon which curriculum will be developed. On the macro-level American educators are more fortunate than their colleagues overseas in that good data do exist. Population studies and research are reasonably well developed in the United States. However, much of the knowledge base is presented in the professional literature of the demographer and population specialist, and, as a result, is not always readily available to the educator. Efforts to translate the professional literature will be needed.

At the level of the impact of population and family size on the family and the individual—in social, psychological, economic and health terms—very little information has been brought together that would be of use to the curriculum developer. This is an area of considerable urgency if curriculum materials are to be developed which are personally relevant to the student.

Second, research is needed on the knowledge and attitudes of students, teachers, administrators and parents. As Sloan Wayland has suggested:

> "As in any curriculum development project, it is useful to know what students know and believe as a basis for the selection of curriculum content. The knowledge and attitudes of teachers are important both in terms of assessing the need for in-service education and

* From Stephen Viederman, "Population Education in the United States: A Report to the Commission on Population Growth and the American Future, October 1971," Washington, D. C.: Government Printing Office, 1972.

in determining to what extent prevailing attitudes may aid or hinder the acceptance of innovation."[1]

The knowledge and attitudes of administrators and the community are equally important for planning purposes. Related to this knowledge and attitude question is the need for research on cultural practices and values related to population. To quote Wayland again:

> "This may deal with such questions as the cultural meaning of the size of family, values associated with male and female children, proper age at marriage, and values associated with the rate of growth of villages and of the nation."[2]

Particular emphasis should be directed to the social and psychological value of children and to the processes by which decisions are made to have children.

Third, the findings of research in education and psychology must be reviewed, and new research planned with respect to the psychology of population learning. At what stages in the emotional, intellectual and social development of the child is population learning most likely to occur, through what means and with what content? Since much of the work in population education is directed toward the development of a sense of social responsibility in the child, the work of Lawrence Kohlberg and his colleagues in moral education is highly relevant.

Educational researchers should be encouraged to review existing curricula materials for their population content in order to determine the extent to which population teaching already exists. Content analysis of readily available and widely used text materials for their population related content should also be undertaken.

Educational researchers should also direct their attention to the diffusion of innovation in the schools and to strategies for education development.

Finally, research and systematic evaluation of population education programs as they are implemented will be necessary. The fact that much learning goes on outside of the classroom makes this problem all the more difficult. Such a project, to measure the impact of population learning as a result of exposure to various materials, has been proposed by a team of educators and social scientists at Florida State University.

Work Group Report

A few general points need to be made in introducing the subject of research in population education program development. 1) Research and evaluation, are an integral part of program development. Yet program development cannot wait for the findings of research, but rather must be prepared to integrate these findings as they become available. 2) We must avoid the all too common assumption that the problems facing population educators are unique. We must make every effort to use, and

[1] Sloan R. Wayland, "The Development of Population Education in Thailand," Teachers College, Columbia University, October 1971.
[2] *Ibid.*

learn from, the research literature of other educational fields. For example, although we know very little about teachers' attitudes toward the introduction of population education in the schools, there is a large literature on the acceptance of innovation. 3) We should encourage the preparation of "state of the art" papers reviewing what we know, both in terms of population content and in terms of the methods of population education.[1] 4) Goals and objectives for programs must be clarified, particularly as they are related to evaluation. They must be seen as dynamic rather than static. 5) We should accept Professor Hertzberg's admonition to record the historical development of this new field in order to learn most from our experience.

Turning now to *basic research*, we identified four categories of studies that we believe to be central to our concern. 1) We need to know more about the formation of population attitudes and values.[2] 2) A general problem in social psychology is the relation of knowledge and attitudes to behavior. 3) We need to know more about the effect of people's perceptions on their definition of population as a problem. For example, youth in rural areas, who may feel the effects of out-migration, probably perceive population problems in a different light than do urban children, living in areas that are receiving the migrants. 4) We need to know more about the cultural norms, attitudes and values of subgroups in the society concerning population concepts.

We turned our attention next to the *knowledge base* upon which the content of programs will rest. Here we emphasize the need for research and information not only at the macro-level, but also at the micro-level. Psychologists and others concerned with the individual and the family unit, must join forces with the sociologists and demographers who have traditionally focused on the larger community. 1) Information is needed on the determinants of population change, both with respect to fertility, mortality and migration, and with respect to sexual and social roles and values. 2) Information is needed with respect to the structure of populations, their composition and distribution. 3) We need to know more about the consequences of population change: psychological, sociological, economic, political, environmental, educational, etc. 4) We must devote our attention to population policy: how it is formed; where does it exist; and how effective it is. 5) We need to direct our attention to the linkages that exist between and among the four areas noted above.

The work group noted the particular importance of translating the materials of the researcher for the use of the teacher, the student and the materials developer.

Research on students is important not only for determining the content of programs, but also because they form an important part of the delivery system. 1) We must must increase our knowledge about the intellectual, social and emotional ability of students to receive different

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[1] See, for example, Nancy F. Russo and Yvonne Brackbill, "Population and Youth," in James T. Fawcett, ed., *Psychological Perspectives on Population* (New York: Basic Books, In press).

[2] See, for example, Susan O. Gustavus and Charles Nam, "The Formation and Stability of Ideal Family Size Among Young People," *Demography*, 7 (1), February 1970, 43-51.

content areas at different age levels. For example, how does one's time horizon or ability to conceptualize large numbers affect the content of population study? 2) We must assess student knowledge, attitudes, values and skills as they relate to population, as the basis for curriculum development. We should begin where the students are, not at some abstract point where we think they should be. 3) We need to know more about the social and psychological conflicts that may be intrinsic to population education. For example, what problems arise with the redefinition of the female role, both within the individual student, and in her relationships with peers and family? 4) We must review what is already being taught and learned both in the formal curriculum and as part of out-of-school learning, in order to identify points of entry into the educational system, both in terms of appropriate materials and appropriate age levels.

Research on reference groups, including parents, school boards and administration, community groups and the media, should assess their roles in influencing students, on the one hand, and their willingness and ability to assist in the development of population education, on the other. The research objective is to identify means to increase their support for the development of population education in the schools. Knowledge and attitude studies, concerning both population and population education, would be useful.

Research on the educational system, with particular reference to teachers, department heads and supervisors, is also needed. 1) Teachers' knowledge and attitudes toward population matters and population education need to be assessed. 2) Different modes of teaching in different settings need to be systematically evaluated, e.g., infusion, separate courses, etc. 3) We should review what is known about the characteristics of instructors that predispose some toward innovation, as an integral part of our effort to expedite the program implementation process. 4) We must study the decision-making and resource-allocation processes within the educational system. How does the system decide what new content to offer, and how are funds allocated once the decisions are made?

Evaluation research, both short term and long term, must be included as part of any program being developed, and immediate feedback into the program must be possible.

In concluding, the workshop indicated that research must be designed so that it will lead to generalizations. Rigor must be stressed. Poorly designed studies, with small samples, do not really tell anything about where we need to go. We need a systematic, and hopefully, additive research activity. A central clearinghouse for research findings and techniques would be useful. The development of standardized instruments for research that might be used by local systems, the results of which could be centrally filed, would give us a better national picture.

The workshop suggested that the bulk of the research should be conducted by university centers, working with local school systems and others with practical experience in population education. Evaluation efforts would involve a large array of institutions.

Strategies for Bringing About Change in School Curricula to Include Population Education

Mary L. Molyneaux
Assistant Superintendent
Pittsburgh Public Schools

Strategies for bringing about change in school curricula to include population education are dealt with by this study group on the local, state and national levels. Greater emphasis is accorded to the local level; the state and national levels are considered briefly. Strategies on the local level are divided into two sections. The first section deals with educational strategies in the school institution, and the second section concerns community involvement.

Strategies in school institutions

One of the central factors in the inclusion of population education in the classroom is the educational continuum itself. Population education must begin in kindergarten with the pupils' increasing awareness of many persons other than family members who are becoming part of their everyday environment and experiences. It must continue through the last years of high school with the consideration of population as a social issue. Throughout the intervening years, facts and concepts pertaining to population must be developed as part of the educational progression.

The following are several approaches for the development of this continuum:

Population facts and environmentally related problems should be infused into existing courses where appropriate. A careful review by committees of teachers versed in population education can locate infusion points and provide enrichment material. In the study of United States

history, for example, students may be asked to trace the evolution of our society from an agrarian culture to a technological culture and to draw conclusions as to how this relates to population. In a course on contemporary society, population growth and control may be dealt with as a 20th century social issue. In a course in introductory sociology, the entire subject of population is appropriate in many contexts. This is not meant to exclude population education from other areas. Indeed, the fields of health education, human sexuality, mathematics and science offer many opportunities in which population education can correlate with the core concepts.

Separate units of a 3- or 4-week concentration can be inserted into existing curricula. The inclusion of population education is appropriate in units on ecology or resources. Adequate time can be obtained by a systematic weeding out of nonrelevant, outdated, or superficial units and information.

Full year high school elective or mini-courses provide opportunities for more in-depth study.

Impact may be achieved by coordinating the entire school program for a specified period of time each year to interrelate population facts and concepts in all courses of the school curriculum. Such an endeavor must be carefully planned and implemented, however, to avoid saturation.

Independent study for students with special interest in population education problems may awaken consideration of possible solutions to existing local problems and may spark awareness of career opportunities.

Curriculum development must involve teachers and central staff personnel. Input from students and the community is also highly desirable.

A major factor in any educational program is the availability of information. In the case of a subject such as population education, it is of prime importance that accurate, up-to-date and nonpolemic information, preferably in soft-back, be available at no cost or at a minimal charge.

Another major factor in the consideration of strategies for including population education in the school curriculum is the involvement of universities, colleges and teacher training institutions in the pre-service and in-service education of teachers. Institutions of higher learning must offer graduate and undergraduate courses in population as well as courses that are appropriately population infused, thus contributing to a well-informed leadership level citizenry.

Pre-service education

Teacher training institutions must provide prospective teachers with adequate background courses and population-related education and environmental management courses so that professionals will be able to deal effectively with population issues in the classroom.

In any learning situation, teachers must be given tools as well as facts. Real involvement in an issue or a problem requires active participation if change is to take place. Teachers in training must experience a variety of learning activities so that they will be able to implement and

evaluate these activities for future classroom use. Throughout the training process, teachers should be urged to analyze their own learning experiences to determine the validity of the experiences for students.

In-service education

In-service education of teachers is one of the most crucial components of educational program planning. The most worthy course "on paper" can fail in the classroom if adequate teacher education is not provided.

Many teachers have had only limited exposure to population education. Each school district, consequently, has the continuing responsibility for providing in-service education. Such training must consist of more than facts and concepts. It must involve teachers in processes for exploring social and personal issues as preparation for assisting students to do the same.

In the general area of teacher in-service education, it is important to plan workshops and other courses well in advance. When a new program is in the planning stages, in-service training is as important a component as textbooks and curriculum materials. In-service opportunities must be given systemwide publicity and ample time allowed for circulation and enrollment procedures.

Another priority in teacher education is the training of college teachers in the various academic professional fields in population education. Special emphasis should be given to training of faculty members from schools and colleges of education because of the high multiplier effect on preparation of teachers for schools.

Financial aid is needed on the local level for teacher education, purchase of materials, consultant services and curriculum development. Such aid upon presentation of carefully developed proposals should be available to school districts from public and private sources.

Strategies for community involvement

Community involvement can be the key to successful education program planning. Some strategies which might be considered are the following:

☐ Elicit ideas, cooperation and support from community organizations, professional groups, educators, parents and community and religious leaders.

☐ With the increased involvement of citizen groups in public education, it is inevitable that those on both sides of the issue will seek to make their positions known to national, state and local educators and demand that their viewpoints become a part of the school curriculum.

Students today refuse to have their minds made up for them. They want factual evidence so that they can decide for themselves. As with all social issues, it is imperative that preconceived notions be examined in the light of evidence and that all sides of the problem be presented for scholarly analysis.

A strategy to accomplish systematic orderly discussions of issues

is to develop a clearcut policy for ensuring free consideration of such topics. In some cases it might be advisable for a policy to be adopted by the school board and made known to all staff members and the public.

☐ Mass media is essential in the education of parents and the general public. It can be effectively used as a teaching-learning device so that school efforts are understood and supported.

☐ Software distributed by business and industry can assist in educating the general public and provide goodwill toward business. Strategies include television, public service programs, bill enclosures, and radio and television spot announcements.

Strategies at the state and national level

While action at the local level remains most crucial in introducing population education into the schools, policies and programs at the state and national level are also important and should reinforce efforts at the local level.

The passage and funding of a Population Education Act is recommended to provide a significant level of support for these activities. Such activities could include:

☐ Consultant services to schools by state education agencies.

☐ Encouragement to schools to add population education to their curricula.

☐ Financial support for curriculum development and teacher education activities.

☐ U.S. Office of Education and other concerned federal agency support for research, evaluation, curriculum development and teacher training in population education in colleges and universities, state education agencies, nonprofit educational organizations and local school districts.

summary session

Summary Session

The session which took place among the various participants during the last day of the Conference has been digested and condensed into the following discussion.

Discussion of the work group reports reflected considerable frustration in efforts to find a standard definition of population education. While such academic disciplines as biology or demography concern themselves with the analysis of population phenomena, the conferees considered this too limited a perspective for population education, which involves a synthesis of knowledge from many disciplines. The perspectives of many population organizations also were considered too narrow often focusing on the information and education elements of their own programs. Instead of trying to establish its domain definitively, it was suggested that population education might best be viewed as a *process* leading to the understanding of the changing world population phenomena and their many implications—a process of investigating causes, consequences and alternative courses of action.

It was further suggested that population education establish close links with environmental education. The relationship between environmental programs and population phenomena was observed, but at the same time it was recognized that a range of important population subjects are not associated with environmental matters. Topics such as the role of women and the effects of education and religion on fertility were cited as examples. The need was recognized by many for a general statement that would allow different frameworks to be used for presenting material and organizing discussion, whether involving a framework of family development, ecology or demography. A substantial number of conferees believed that each of these different frameworks could appropriately be considered under the common umbrella of population education without inconsistency or difficulty.

One advantage of such a broad approach is the flexibility it affords in local or community level educational efforts. Those population-related variables which are readily identifiable and understandable to the students involved provide effective avenues for illuminating the subject area. These variables will differ, depending on the community from which the students come as well as their individual family circumstances.

For example, if materials were developed on subjects including the psychology of fertility, resource depletion, crowded urban environments and migration patterns of rural and suburban areas, schools in each community could choose the focus most appropriate to their local situation.

While the discussion centered on instructional programs in the formal school system, some attention was paid to out-of-school opportunities for population education. Alternative vehicles for population education and information programs include labor unions, community education groups, church groups, and social welfare groups. All of these channels outside the school system offer opportunities for disseminating material and stimulating discussion at relatively low cost. Some conferees observed that if primary interest is to initiate programs rapidly to reduce population growth, then the schedule necessary to introduce population education through the formal school system would probably be too slow. If, however, primary interest is in education, intellectual development and appropriate adjustment by individuals and communities to their demographic circumstances over the long run, then a decision must be made about where emphasis will be placed, considering the effectiveness and appropriateness of both formal and informal educational approaches.

When introducing a subject like population into the schools, the difficulty of achieving innovative educational planning becomes apparent. A few points presented by various participants indicate some of the important elements of this planning process.

1) Classification of population subjects and teaching materials would facilitate communication among organizations and individuals and would permit efficient systems of storage and retrieval of information.*

2) Curriculum development must reflect how information and ideas are learned and how learning is transferred into behavior. Demographic subjects may pose particular problems because of the time lag between causes of population change and their consequences, the personal overtones of human development and the value conflicts that frequently surround reproductive behavior.

3) Curriculum planners should be aware of the competition with other subject areas, and should consider how population education material can be complementary to other curriculum components.

4) The complexity of many subjects embraced by population education requires special skills for teachers. Both pre-service and in-service training programs are important, and an assessment should be made of the need for instructional personnel in these programs.

5) Guidelines should be established to ensure some control over the allocation of resources to be used in planning and experimenting with new programs.

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*Concerning this step in the planning process, the Association for Supervision and Curriculum Development, which seems to have a sphere of influence throughout the country, has an annual publication which lists available and forthcoming curriculum material in the traditional discipline areas. An effort should be made to include population as a category in this publication.

6) Any population education program must be fashioned within the realities of the local communities where it will, after all, be implemented.

Planning for the orderly development of population education is imperative. Many teachers are writing and using lesson plans and modules which may lead to misinformation about population problems. Population education should acquire the support of teachers through means such as teachers' associations and journals and then efforts should be coordinated in developing population education programs which will ensure objective treatment of population subjects.

There are parallels between the development of population education and the evolution of population planning. Both movements have been launched by private groups. In both fields, the government subsequently has taken an interest and declared itself in favor of solving "the problem." In the field of population planning, a substantial lag occurred before programs were developed, authorized and funded. In population education we are still encountering this lag. Governmental agencies probably do favor population education, but thus far have delivered little in the form of programs that would move it forward.

The role of the private organizations active in advance of governmental offices was briefly delineated at the Conference. Representatives from three private organizations described their roles in the population education effort.

The Ford Foundation's Population Office was described as being situated within the Foundation's international division resulting in a strong orientation toward population problems of the developing world. While the Population Office has a number of activities in the United States, the majority of these involve the definition and solution of population problems in developing countries. The role of the Foundation in population education abroad has been limited, with emphasis more on sex education than on population education. Recognizing the Foundation's international orientation in population, it was suggested that projects and activities be identified which would facilitate both foreign and domestic efforts.

The Planned Parenthood program was briefly described, and it was suggested that it could assist population education efforts in two ways. It can serve as a resource to curriculum developers in those areas in which it has both knowledge and experience: individual fertility management and its relationships to population growth. It also can serve as a vehicle for the transmission of suitable educational materials to community education systems through its nearly 200 local affiliates.

Zero Population Growth, Inc. (ZPG) has the capacity to transmit local concerns and demands to local, state and federal governments. Because of the 400 chapters across the country, ZPG can provide an activist force to change community opinion so that formal educational programs can be accepted in the schools as well as through non-formal channels using the mass media, speaker's bureau, and other forms of community education.

retrospective comments

Retrospective Comments

Following initial calls to action and some responsive efforts to train teachers and develop teaching materials, population education today can be characterized by variance rather than concurrence. Interest groups seek to extend their identity by advocating their particular brand of population education. Others still debate just how their interests might best be reflected in this new educational endeavor. Participants at the National Conference on Population Education thus continued the struggle to define and identify the issues, concepts, and approaches crucial to a well balanced and objective population education program. The struggle touched on plans for a broad overarching scheme of population education in addition to dealing at length with the individual components of such a scheme appropriate to local community and classroom situations.

Within the context of the U.S. secondary school system, the heart of population education involves the student, teacher and materials in the classroom. The classroom, however, is not an isolated setting but a component of a much larger system, a system in which certain needs must be recognized if teachers are to receive support, and if materials are to be developed and delivered. In other words, school administrators also need education; they need to perceive the opportunities and problems existing in the classroom and the community in relation to population education.

School administrators in turn are responsible to local school boards, a body with the potential for making a major impact on general public education by legitimizing the subject of population and by opening the budgetary channels for curriculum development.

Beyond local activity, the responsiveness of state administrators and curriculum supervisors should be recognized as yet another component in the increasingly complex and hierarchial system of interest and influence. The professional education associations provide an additional network of communication for reaching their members who span all levels of the educational system.

The population education activities undertaken at these various levels will be influenced in large degree by the policies and programs of the federal government. The financial support forthcoming from federal

agencies will determine significantly the rate of activity in the overall development of population education. Finally, the foundations and private organizations are also a source of dollars and technical assistance whose contribution to the field in these early stages can be rather substantial.

In recognizing the diversity of interest of various population education groups, and the distinct contributions they can make, one can begin to identify a complementary pattern of work which might facilitate the development of the field. While some differences in philosophy and approach undoubtedly will prove irreconcilable, diversity need not imply a point of impasse.

Intelligent policy and effective work in population education requires not only a continuous supply of information about the importance, urgency and opportunity for activity in this field, but also representation of common and conflicting views about its desirability and feasibility from all levels of the community. If population education is to be a legitimate activity, all the components of the complex educational system mentioned above should be considered as participating in a larger educational process which has as its ultimate focus the interaction of student, teacher and material in the classroom.

Although the need for overarching schemes is continually emphasized, educators must realize that while the broad scheme may serve as a guide, in practice it may result in inadequate coverage when transferred to the classroom. Research and conceptual frameworks will evolve as the population education movement progresses, but first we need material carefully and imaginatively presented, and we need to test that material, evaluate, modify, and re-test it.

Finally, the differing ideas and opinions expressed at the Conference demonstrate more than anything else the importance of avoiding tightly-knit and conclusive schemes. Only through a continuous kindling of interest and supply of information will the process of population education continue to evolve. This does not, of course, exclude an orderly system of investigation and implementation, but rather emphasizes the need for a high level of tolerance among population education supporters for ideas different from their own.

Participants

Teachers and Administrators

Peter S. Bennett
Staples High School
Westport, Connecticut

Edward L. Biller
Supervisor of Social Studies
Baltimore Public Schools
Baltimore, Maryland

Barbara Blomquist
Windsor, Connecticut

Malcolm A. Dutterer, Jr.
Associate, Special Projects
Baltimore Public Schools
Baltimore, Maryland

Thomas Hounsell
Director, Population Environment Project
Alexis I. duPont School District
Greenville, Delaware

Donald Knouse
Supervisor of Social Studies
Department of Public Instruction
Dover, Delaware

Mary L. Molyneaux
Assistant Superintendent
Pittsburgh Public Schools
Pittsburgh, Pennsylvania

Ward Morehouse
Director
Center for International Programs and Cooperative Studies
State Education Department
Albany, New York

Lawrence Nilson
Weston High School
Weston, Massachusetts

Rueben Pierce
Supervising Director of Department of Science
D.C. Public Schools
Washington, D.C.

Carla Price
Department of Social Studies
Farmingdale Senior High School
Farmingdale, New York

Frank Reardon
Environmental Education Program
State Department of Education
Harrisburg, Pennsylvania

Godfrey Roberts
New Brunswick, New Jersey

Kenneth J. Rouse
Oakcrest Regional High School
Mays Landing, New Jersey

Robert Schwille
Director
Environmental Education Program
State Department of Education
Harrisburg, Pennsylvania

Erma Thompson
Pittsburgh, Pennsylvania

Joan Valieant
Environmental Education Specialist
Montgomery County Schools
Rockville, Maryland

J. Zeb Wright
Director, EPDA Programs
State Department of Education
Charleston, West Virginia

Educational Organizations

George H. Baird
President
Educational Research Council of America

Howard F. Bausum
American Association for the Advancement of Science

James S. Eckenrod
Biological Sciences Curriculum Study
University of Colorado

Howard Foncannon
Associate Director of Education
American Association for the Advancement of Science

A. Grebecki
Visiting UNESCO Scholar
Biological Sciences Curriculum Study
University of Colorado

Mary Hawkins
Editor
The Science Teacher
National Science Teachers Association

Daniel Roselle
Editor
Social Education
National Council for the Social Studies

Robert E. Roth
Coordinator for Environmental Education
ERIC Center
Columbus, Ohio

Universities

Val A. Arnsdorf
Professor of Social Studies Education
College of Education
University of Delaware

Norton L. Beach
Dean, School of Education
University of North Carolina

Jack Blackburn
School of Education
University of North Carolina

Jerry Brown
Assistant Professor of Education
Laboratory for Educational Development
Indiana University

Noel-David Burleson
Carolina Population Center
University of North Carolina

Lawrence A. Davis
President
Arkansas Agricultural, Mechanical, and Normal College

Alexander Doberenz
Assistant Dean
College of Human Biology
University of Wisconsin-Green Bay

Kathryn Finseth
Harvard Center for Population Studies
Harvard University

Paul Handler
Computer-Based Education
Research Laboratory
University of Illinois

Hazel Hertzberg
Teachers College
Columbia University

Carl Huether
Department of Biology
University of Cincinnati

David Kline
Center for Studies in Education
and Development
Harvard University

Byron G. Massialas
Department of Social Studies
Education
Florida State University

William D. McElroy
Chancellor
University of California
at San Diego

Charles Nam
Department of Sociology
Florida State University

Nancy Russo
Department of Psychology
Richmond College
City University of New York

Stephen L. Salyer
Davidson College

Judith Schultz
Assistant Professor of Biology
Department of Biology
University of Cincinnati

Haifaa Shanawany
University of North Carolina

Kathleen Shordt
School of Education
University of North Carolina

Douglas Spicer
Center for Studies in Education
and Development
Harvard University

Robert W. Stegner
Professor of Biology and Education
College of Education
University of Delaware

J. Mayone Stycos
Director
International Population Program
Cornell University

Sloan R. Wayland
Associate Dean for Student Affairs
Teachers College
Columbia University

Eugene Weiss
Center for Population Planning
University of Michigan

Nonprofit Organizations

James Aldrich
Director of Education
The Conservation Foundation

Letitia Atwood
Assistant to the President
Population Reference Bureau, Inc.

Marcia-Ximena Bravo
Special Assistant to the Director
of International Programs
Population Reference Bureau, Inc.

Michael F. Brewer
President
Population Reference Bureau, Inc.

Elizabeth Burke
Program Coordinator
Center for War/Peace Studies

Caroline S. Cochran
Board Member
Population Reference Bureau, Inc.

Donald A. Collins
Administrative Agent
The Scaife Family Charitable Trusts

Tom Collins
Director, Schools Program
Center for War/Peace Studies

Judith Contrucci
Educational Challenges, Inc.

Susan Deeks
Zero Population Growth, Inc.

Kathy Desmond
American Freedom From Hunger Foundation

Joan Draper
Director
The Student Project
Population Institute

Robin Elliott
Director, Information and Education Department
Planned Parenthood-World Population

Beth K. Freeman
Population Institute

Alvaro García-Peña
Vice-President and Director of the International Programs
Population Reference Bureau, Inc.

Evalyn S. Gendel
Director, Division of Maternal and Child Health
Kansas State Department of Health

Kathryn Horsley
Staff Associate for Population Education
Population Reference Bureau, Inc.

Corinne B. Johnson
Associate Director
Family Planning and Population Education Program
American Friends Service Committee

Lawrence Kegan
Executive Director
Population Crisis Committee

Leonard Lane
Assistant Political Director
Zero Population Growth, Inc.

Rufus E. Miles, Jr.
Past President
Population Reference Bureau, Inc.

Dorothy L. Millstone
Associate Director
Information and Education Department
Planned Parenthood-World Population

Robert R. Nathan
Chairman of the Board
Population Reference Bureau, Inc.
and *President*
Robert R. Nathan Associates, Inc.

Christian N. Ramsey
President
Institute for the Study of Health and Society

Judith Senderowitz
Zero Population Growth, Inc.

Stephen Viederman
Assistant Director
Demographic Division
The Population Council

Robert S. Wickman
Program Officer
The Ford Foundation

Martha Willing
Co-Director
Population Dynamics

Robert E. Willison
President, Laurel Foundation, Pittsburgh, Pennsylvania

Government

Laurence Binder
Program Director
Course Content Improvement Program
Pre-College Education in Science
National Science Foundation

Robert Gilkey
Director
Office of Environmental Education
U.S. Department of Health, Education, and Welfare

Louis M. Hellman
Deputy Assistant Secretary for Population Affairs
U.S. Department of Health, Education, and Welfare

Earl Huyck
Behavioral Sciences
National Institute of Child Health and Human Development
National Institutes of Health

Jean Intermaggio
Course Content Improvement Program
Pre-College Education in Science
National Science Foundation

Barry Karlin
Acting Chief
Office of Information and Education
National Center for Family Planning Services

Juliet Lesceux
Office of Environmental Education
U.S. Department of Health, Education, and Welfare

Peter Muirhead
Deputy Commissioner of Education
U.S. Department of Health, Education, and Welfare

James O'Donnell
Information Officer
Office of Information and Education
National Center for Family Planning Services

James D. Singletary
Office of Education and Human Resources
Agency for International Development
U.S. Department of State

J. Timothy Sprehe
Research Division, Office of Population Technical Assistance Bureau
Agency for International Development
U.S. Department of State

Charles A. Whitmer
Director
Pre-College Education in Science
National Science Foundation

Other

Trinidad A. Gomez
Chief
Office of Health, Education and Personnel Training
Department of Health
Philippines

Jacinto C. Gotangco
Head, Department of Health and MCH *Project Director*
Philippine Rural Reconstruction Movement
Philippines

Saul Jaffe
Hartwest Productions, Inc.
New York, New York

Anna Laurie
United Nations Development
Program
Santiago, Chile

Eugenio A. Ocampo, Jr.
Project Manager
Project Management Group
National Computer Center
Philippines

O. J. Sikes
Population Education
Department, School of Education
UNESCO
Paris, France

Ester B. Sy-Quimsiam
Project Officer
Commission on Population
Philippines

Population Reference Bureau, Inc.

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